American Aviation

The Independent Voice of American Aeronautics

JULY 1, 1943

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Waste and Abuse

THE strain on the nation's various transportation systems is reaching unprecedented proportions this summer. Especially in the South, the Mid-west, and the Far West, transportation conditions verge on the unbelievable.

Fortnightly Review

One transportation executive remarked the other day with a combined note of sarcasm and facetiousness that the High Command must have its signals mixed. While we are blasting Germany's transportation and industrial resources in order to stop her war effort and destroy her civilian morale, we have let our own transportation systems creak and groan under burdens they were never meant to carry. We are reaching a dangerously low point in transport efficiency.

To the credit of the railroads they are lumbering along under strains and handicaps that one would have believed impossible a few years ago. Conflicting statements issued by a multitude of diverse Washington agencies as to whether the American citizen should or should not take a vacation that requires travel, and the vast uncontrolled and largely needless travel by service men and their sweethearts and families not justified by foreign duty or rigorous training, has tended to throw U. S. transportation into bedlam.

Undersecretary of War Robert Patterson has just complained that the war output is lagging. One way to hold back war production is to permit transportation to bog down. No recital of example is needed to bolster the obvious fact that shipments of precious war cargoes and vital air mail communications are being seriously delayed. Those who are actively engaged

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Returning from the battle skies of Tunisia where he said had been formed the "pattern of the future," Brig. Gen. Lawrence S. Kuter, deputy commander of the Tactical Air Force in the Tunisian Campaign, is awarded the medal of the Legion of Merit by Gen. H. H. Arnold, left, commanding general of the AAF. Kuter was one of three high-ranking AAF officers who hailed airpower last fortnight following Tunisia, Pantelleria, and Lampedusa.

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Late Bulletins

NATS Expands

Naval Air Transport Service announced June 24 that Squadron 5 is being commissioned at Seattle, Wash., and will operate a landplane service between the U. S. and Alaska. At the same time it revealed officially the existence of arrangements with Pan American Airways and American Export Airlines whereby these companies will supplement work of NATS by operating under contract to the Navy air transportation services to Naval establishments and fleet units in war areas.

Confidence in WTS

Out of 9,000 War Training Service students, only 235 or 2%, have asked to be released to civilian life, all others electing to stay.

Trend of the News

Progress: The government's interdepartmental committee on international civil aviation has not yet transmitted its report to Secretary of State Cordell Hull, but is making considerable progress. The two basic principles — no government ownership and no monopoly—were the easiest parts of the report to agree upon. Secondary matters required more time than was originally estimated. Meantime there *may* be some *preliminary* discussions between the U. S. and Great Britain on postwar air policies before September. Assistant Secretary of State Adolf Berle is considering a trip to London but may or may not delve deeply into air problems at that time.

Who will own? More than one manufacturer is pondering the hefty question of plant operation when military contracts cease. The vast bulk of new war plants are owned by Defense Plant Corp., but the leases have clauses giving the manufacturer the right to purchase later on. But what of the five huge plants built and owned outright by the War Department? These plants cost between $45,000,000 and $60,000,000, and the manufacturers have only management contracts without any purchase clause. The War Dept. owns everything including tools, dies and jigs. The plants are: Bell Aircraft at Marietta, Ga.; Consolidated at Fort Worth, Texas; and three Douglas plants at Chicago, Tulsa and Oklahoma City. Three more are to be purchased by the War Dept., according to rumors. The big question is: What is the War Dept. going to do with the plants and their huge quantity of manufacturing equipment?

Parts Bottleneck: One of the worst bottlenecks in the war effort is now spare parts. There are plenty of parts but they never seem to be in the right place at the right time. The Air Service Command is coming in for plenty of kicks these days. Some planes have sat on the ground for a month or two awaiting a 70c part. One of the big hold-ups in bombardment of Germany has been the slowness of parts and servicing in England. So difficult is it to get parts that at every Army base there are planes sitting in the hangars called "Hangar Queens." These

(Turn to page 6)

20c

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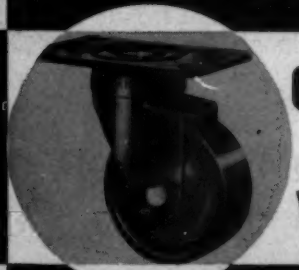

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American Aviation

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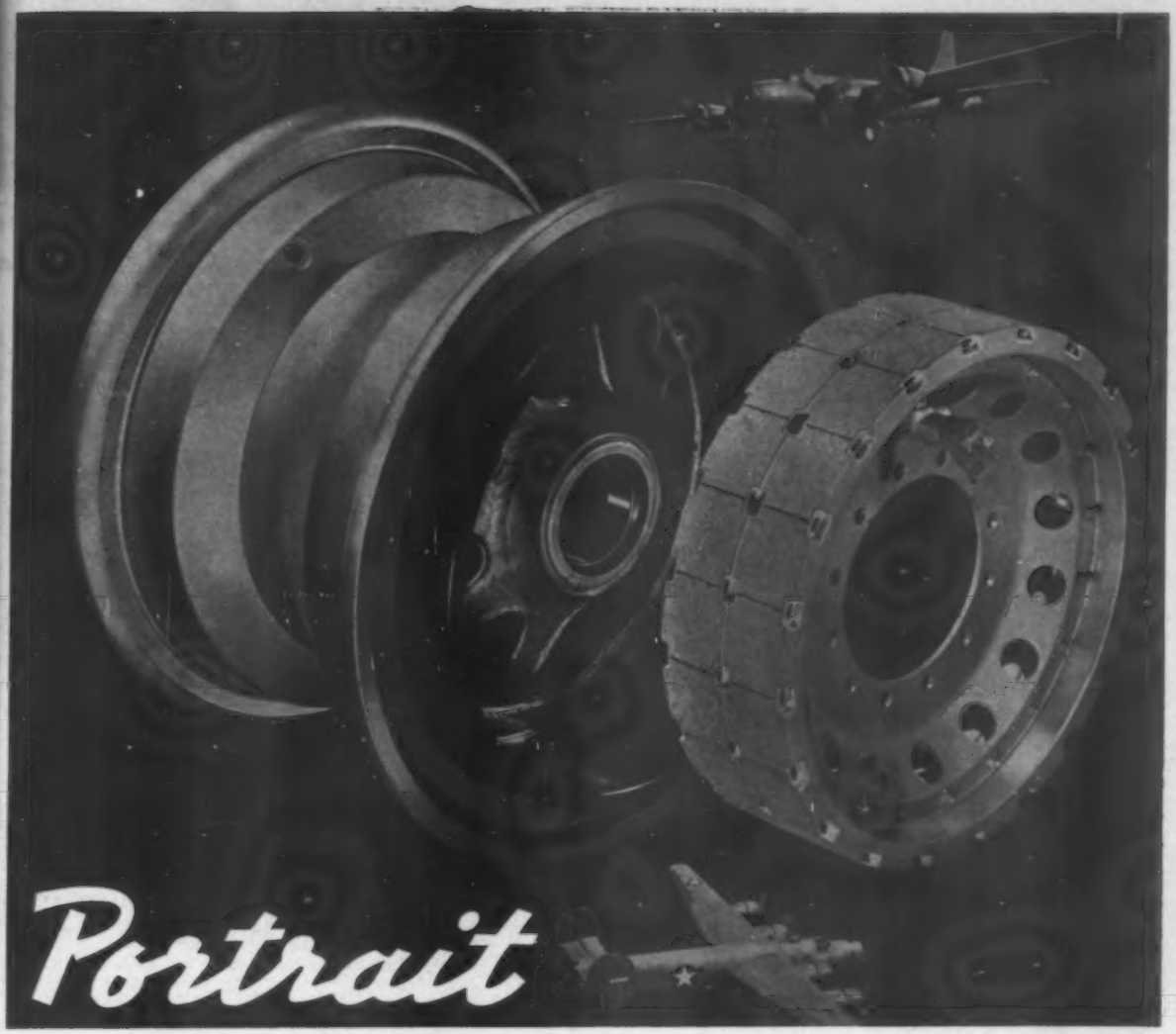

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AMERICAN AVIATION DAILY

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(Continued from page 1)

planes are the reservoir of parts and are being continually stripped in order to keep other planes flying. A lot of reorganization of the entire service set-up is in order, according to field reports, for the present system has become very costly and wasteful.

Invasion: Efforts of other forms of transportation, particularly bus and trucking interests, to "invade" the air transportation field, are expected to gain momentum in the next several months. Companies with applications on file are expected to press for hearings, now that the Civil Aeronautics Board has reopened new route cases. In addition, more new applications are expected.

Trouble: Question of big airlines versus small airlines will give CAB some trouble. Some of the smaller companies feel that the Board has not given them a break in recent cases. On the other hand, the larger lines feel that they have been awarded only that to which they are entitled.

Slow Legislation: There are strong indications that Congress will be exceptionally slow in acting on any of the major aviation legislative proposals. The House Interstate and Foreign Commerce Committee is considering paragraphs of the Lea Bill one at a time and best bet is no action before fall. No consideration has been given yet to hearings on the recently introduced bill for disposition of surplus aircraft after the war.

Fewer Casualties: Aerial warfare is dictating a reduction in war casualties among American men in World War II as compared with World War I. In the last war, which lasted virtually the same length of time as the present war to date, the American percentage of casualties in ratio to the total number of men under arms was eight per cent. The percentage of casualties for practically the same span in the present war is less than two-tenths of one per cent. In the 18 months of the present war, total United States casualties (as of June 10) are 88,582, a figure representing dead, wounded, missing, and prisoners of war in all branches of the service.

WPB Shift: Indications are mounting in Washington that WPB Vice-Chairman Wilson is planning gradual turn-over of aircraft production control to his administrative assistant Colonel E. F. Jeffe. Jeffe, formerly with Consolidated Edison, is said to be pro-military and to believe that aircraft is the exclusive concern of the armed services. First concrete action taken by Wilson was to turn over control of all personnel and financial matters of the three units of the Aircraft Production Board, which still remain at WPB: Aircraft Priorities Branch, Project Rating Branch and Project Service Branch. Although Wilson insists Jeffe will never "control aircraft production," Washington observers are watching for some less forthright method than a directive appointing him head of APB. Project Service Branch is a new section, set up June 12, to "assist WPB in the scheduling and delivery of critical capital equipment and plant facilities used in the construction of aeronautical plant expansions and air bases."

Into Uniform: WTS civilian instructors will probably be put into uniforms similar to those worn by airline pilots before long. A telegram sent to all Army-WTS contractors last week for comment has received unanimous approval so far. A simliar arrangement has been worked out by the Army primary contract schools for uniforming their instructors.

IS IT RIGHT?

Inspections give the answers in the production of Edo Floats

In the above photograph you see a part of an Edo seaplane float receiving its identification number from an inspector's stamp. The stamping identifies both the part and the inspector—a permanent "fingerprint" record which illustrates the care exercised in the inspection of every detail entering into the manufacture of Edo Floats.

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SERVES THE UNITED NATIONS

Editorial

(Continued from page 1)

in war work are finding it increasingly difficult to accomplish their missions or to obtain shipments when needed.

One very important bottleneck should be relieved right now. More transport airplanes should be allocated without delay to commercial airlines. These airlines willingly gave up half of their equipment when lack of foresight in the War Department caught the Army without sufficient transport and cargo planes at the beginning of the war. But transport plane production has now risen to impressive proportions and there is now no rhyme or reason for any further delay in returning to the airlines the planes given up earlier in the war.

As a matter of fact an investigation would reveal some healthy abuses in the utilization of Army transport airplanes. If high government officials and certain other brass hats had a string of individual Pullman cars sitting at Union Station in Washington for the exclusive use of each person when and if he wanted to go some place, there would be a terrific outcry. Such waste of equipment in war time would not be tolerated.

But, if anything, a 21 passenger transport plane is more useful as a unit of transportation than a Pullman car and yet there are enough Army and other government transport planes sitting idly by, or little used, to operate an entire airline system capable of performing millions of passenger miles during the course of a year. There are even surplus 21 passenger transports tied up in training units. The Army transport plane utilization per day is so much lower than that of commercial airlines as to bring up serious questions about the government's attitude toward commercial air transportation in the war.

Is it right for a single medium-rank Army officer to take a 21 passenger plane, with full crew, on a cross-country trip for a conference which could easily have been handled by telephone, or when he could have hopped on a domestic Army cargo plane bound for the same destination? Is it right to have 21 passenger planes providing luxury transportation for one or two officers when the remaining space is needed for cargo and other passengers? If Pullman cars or Greyhound buses were used with such extravagance the officers would be ripe for court martial. But we are tying up planes and crews right and left so certain officials can "go home" over the week-end. The utter waste of transport airplanes is a sorry phase of the war, especially when transportation is so badly needed throughout the country.

If the railroads used their coaches and Pullman cars only three hours a day they would be accused of gross negligence. If the commercial airlines used their planes only three hours a day they would be inexcusably derelict in their responsibilities. Then why should vitally needed transport planes of the Army be so wasted as to be used on an average of three hours or less per day?

When former President Herbert Hoover was "bounced" from a commercial airline by a priority pilot at Denver a few weeks ago, Lee Casey, editor and leading columnist of the *Denver Rocky Mountain News*, was moved to point out that the military necessity by which the airlines gave up airplanes to the Army at the start of the war "no longer exists." Especially in time of war, he said, it is necessary to maintain the commercial carriers for production and transportation efficiency. "Return of an adequate number of planes to the commercial lines would be an important contribution to the war program."

The crux of the whole problem is simply the lack of recognition in many quarters that a transport airplane is a *unit of transportation*. It is *not* a personal air buggy for individual transportation any more than a Pullman car or a Greyhound bus would be so considered in war time. It is capable of performing a great and vital transportation job for cargo, for mail, and for war-time passengers. There is nothing more useless than a transport plane sitting idly on the ground. Any transport airplane not being utilized at least 10 hours per day over a period of time should be turned over to men who know transportation and who know how to utilize, operate and schedule these vital units of transport.

The load factors on all vital commercial air routes is as close to 100% as is practically possible. Commercial planes are being used to the very top limit of efficiency. Even so, the fight for space is chiefly among priority passengers with lower classes of priorities "bounced" constantly. Air mail and air express is suffering.

Let's cut out the monkey business in air transportation and let *a transportation medium and transportation specialists* do the job. The airlines *must* have more airplanes and there is no longer the slightest shred of a reason why they should not have them at once. This is no time for amateurs, personal privileges and waste.

Signs of the Times

AS LONG as the war continues, the military services will be given all the funds they need. But Congress and the people are showing definite signs of impatience and dissatisfaction with extravagance and it will pay the aviation industry well to watch the trend of the times. It doesn't take much imagination to forecast the very sharp slashing of government spending when the war needs disappear.

"The cost is frightful . . . The figures are almost unbelievable." Those were the words of the House committee on appropriations in reporting out the $72,000,000,000 Army bill the other day.

Typical of Congressional sentiment was the statement by Senator Walter F. George, Democrat of Georgia, who said: "You can lose the war through extravagance and waste. You can lose the war through inadequate manpower to maintain the home front economy. There is no more certain way of sapping morale at home than unnecessary extravagance and waste."

The moral is plain enough. There will be nothing as dead as a pursuit plane or a dive bomber at the cessation of hostilities. The pressure of taxation and the impatience of the people at wanting to forget the war and resume normal endeavor, will have its inevitable effect in Washington. Appropriations will be slashed to

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Today

Even in air-minded, speed-conscious America most of the passenger and freight traffic still moves on the surface of earth and water. But a new tomorrow is being shaped . . . its pattern of swift wings spanning land and sea is already beginning to emerge from the wartime services that National and other airlines are providing for the movement of civilian and military travelers and freight cargoes.

Tomorrow

Giant multi-motored planes will wing passengers and heavy freight cargoes to remote corners of the earth at speeds that will make today's seem slow, doing in hours what now takes days or weeks to do. National Airlines is actively planning for this tomorrow when thousands of men now in our fighting air-forces will find their post-war opportunities under National's house-flag

NATIONAL AIRLINES

The Buccaneer Route

Editorials

(Continued from page 8)

the bone—sharply and rapidly. There have been fears expressed in some industry quarters over the possible permanence of certain Army operations, but these fears appear groundless enough when one looks at the temper of the country and knows what will happen when military needs no longer exist.

The effect of the inevitable shrinking of our military services will be serious to the entire aviation industry. A 95% to 98% deflation of the aviation manufacturing community is not to be treated lightly. It deserves close study. The fact must be faced in the light of reality: there simply won't be an endless period of government appropriations. Private industry will have to get back on its own feet. Those who don't believe the end of government contracts is coming are not realists.

A Contemporary Protests--Too Much?

OUR valued contemporary across the seas, *Flight*, didn't take too kindly to an editorial entitled "Imperialism in the Pacific" which appeared in these pages several months ago. Unfortunately our use of a phrase "as far as" gave rise to some confusion, but we beg leave to make our position clear. We certainly did not advocate taking over New Zealand, or any of the islands integral to that important country, or any other large land mass in the Southwest Pacific. What we *did* advocate was the Americanization and control of all of the thousands of islands in the Pacific itself and to make sure that there can be no repetition of the incidents in 1941 and 1942.

Our contemporary brought up some very touchy subjects about the war and it would not behoove us in the interests of Allied amity to argue at this stage of affairs about the origins and intricacies of the war, much as we might like to argue. Let's win the war first. Whatever arguments we might have are "within the family" and family disputes can wait, for there are no disputes on the war aims and Allied collaboration. Nonetheless we believe our contemporary misconstrued the entire basis of our editorial and evaded some highly important points. We still believe this country should openly control the entire Pacific area, without any exceptions, but the *Southwest* Pacific most assuredly belongs to those who are very able to take care of that area after the war is won.

Detroit's Opportunity

MR. JAMES SWEINHART of *The Detroit News* has been writing a series of articles for his newspaper on Detroit's postwar future, and we took special interest in two of the series dealing with the city's future in the air. Mr. Sweinhart undertook a major project when he endeavored to awaken Detroit to its strategic potential importance as an aerial crossroad, for Detroit's first love is automobiles and it has been mighty slow to catch the significance of the airplane.

One of aviation's grand pioneers who has tried more than once to awaken Detroit to the airplane, William B. Stout, gave a rather pessimistic but nonetheless very intelligent interview to Mr. Sweinhart. "What you've got to get is new, young, airminded leadership that's looking forward to the future with vision, courage and interest and whose careers and fortunes are still to be made," Bill Stout said. Then he said, somewhat sadly, "You know, sometimes I almost think Detroit, great as it has been and is, really doesn't want to have a part in the world's next great advancement."

It is time Detroit awakened and *The Detroit News* is to be commended for its approach on postwar problems. The bulk of the world's international commerce will come to the borders of the United States, and Detroit, like Cleveland and New York, is on the border. In the early days the trunk railroads passed Detroit by, and even today it is on spur lines off the major routes. But in the air the future is wide open if it awakens in time. It is an admirable possible port of entry for air routes from Europe to the great Middle-West of the United States. It is closer to other industrial centers of the world than it realizes. But of all major cities in the nation, Detroit has been the least airminded, the least receptive and alert to new ideas. We are glad Bill Stout didn't pull his punches. He never does. To Detroit the challenge is a real one.

Skepticism

In an old foundry in Worcester, Mass., Sam Solomon, who is double-heading as president of Northeast Airlines, Inc., and the Airlines War Training Institute, found a copy of "An Old Fraud." Mr. Solomon hasn't explained what he was doing in an old foundry in Worcester, but has been kind enough to pass on to his friends the writings of an editor of a Boston newspaper about sixty years ago who seemed to have been somewhat skeptical of modern inventions. It has a point.

"An Old Fraud"

"A man about forty-six years of age, giving the name of Joshua Coppersmith, has been arrested in New York for attempting to extort funds from ignorant and superstitious people by exhibiting a device which he says will convey the human voice any distance over metallic wires so it will be heard by the listener at the other end. He calls the instrument a 'telephone,' which is obviously intended to imitate the word 'telegraph,' and win the confidence of those who know of the success of the latter instrument without understanding the principles on which it is based. Well informed people know that it is impossible to transmit the human voice over the wires as may be done with dots and dashes and signals of the Morse code, and that, were it possible to do so, the thing would be of no practical value. The authorities who apprehended this criminal are to be congratulated, and it is to be hoped that his punishment will be prompt and fitting, that it may serve as an example to other conscienceless schemers who enrich themselves at the expense of their fellow creatures."

WAYNE W. PARRISH

The B.F. Goodrich Airline of the month

EASTERN *Air Lines*

HIGHLY GEARED to the business of all-out war, Eastern Air Lines are doing a tremendously vital job. Night and day their great Silverliners and the transports they operate for the U. S. Army are speeding freight, essential civilian travelers, and military personnel over a sky route that blankets the eastern third of the United States.

Many B. F. Goodrich products fly with the Silverliners. De-Icers crack off any ice that forms on wing and tail surfaces. Expander Tube Brakes improve ground control and help bring planes to safer, smoother stops. And B. F. Goodrich Silvertown Tires mean safer landings and take-offs with capacity loads.

For the vital part they're playing in the war effort and for their many contributions to the advancement of commercial aviation, B. F. Goodrich nominates Eastern Air Lines as "Airline of the Month."

In war or peace

B.F.Goodrich

FIRST IN RUBBER

B.F.GOODRICH RUBBER RESEARCH FOR THE *Aviation industry*

WARTIME AVIATION LEADS TO NEW TIRE DEVELOPMENTS

ONLY A SHORT WHILE AGO, aviation's modest needs were well supplied with only a few types of properly engineered tires. Most important of these, both then and now, was a low pressure tire that was tough, yet with plenty of cushioning for transport and private planes.* High pressure tires that were light and compact were available for Navy deck landings and similar services.

But today, as global warfare has carried our planes into jungle terrain, desert sands, and arctic "snow ports," it has been found necessary to develop many new kinds of tires. Here are some of the landing problems and the tires B. F. Goodrich engineered to meet them:

PROBLEM: To provide fast military planes with a wider braking area for quicker, surer stops on all types of landing fields.

SOLUTION: A larger bead diameter was provided in the B. F. Goodrich Smooth Contour Silvertown. Thus, larger wheel rims and greater braking surface were obtained. The wide footprint and non-skid tread of this tire meet the need for maximum ground contact and stability.

PROBLEM: To stop fast planes more quickly and efficiently on icy runways and to take off without skidding.

SOLUTION: Steel coils bonded to the rubber during vulcanization and running around the circumference of the tire bite into the ice and stop the plane quicker, or give ready traction for all ground maneuvers. The new B. F. Goodrich Winter Silvertown is the result.

PROBLEM: To develop a small solid auxiliary wheel for airport operations that would keep cool, even in hot climates and when excessive taxiing cannot be avoided.

SOLUTION: A solid tire in which the tread is *vented.* Venting goes half-way through the sidewall and half-way through the tire, with alternate rows of vents on opposite sides. Some sizes have the aluminum casting vented for extra heat dissipation.

PROBLEM: To provide a tire with High Pressure characteristics, yet which would provide extra ground contact on improvised emergency runways.

SOLUTION: The B.F. Goodrich Channel Tire is built with a high, almost square shoulder that gives a wide, ground-hugging footprint.

PROBLEM: To be ready with the "know how" to build *airplane* tires of synthetic rubber.

SOLUTION: Synthetic airplane tires were made and tested by B. F. Goodrich and approved by the Civil Aeronautics Administration on March 5, 1943, for use on the air lines.

**The first low pressure airplane tire was developed by B. F. Goodrich engineers, and has become the most famous airplane tire in flying history. It's known as the B. F. Goodrich Low Pressure Silvertown.*

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ARMY E NAVY

Awarded to seven plants

These tires meet the Challenge of

GLOBAL WAR IN THE AIR

1. Here is the Smooth Contour Silvertown, in the B. F. Goodrich testing laboratories. All smooth contour landing wheel tires for military planes have non-skid tread.

2. The B. F. Goodrich plane, Miss Silvertown III, landed on the new Winter Tire during the icy months last winter. Note the tracks made when the steel coils dug into the ice.

3. One of the first synthetic airplane tires for airline service coming out of the curing mold. C.A.A. approved, these tires are now being used on a few planes by leading airlines.

In war or peace

B.F.Goodrich

FIRST IN RUBBER

NEW CATALOG SECTION: A new catalog section, giving the complete line-up of B. F. Goodrich tires, including data on sizes, capacities, weights, contact areas and other information, is just off the press. Write for your copy today. B. F. Goodrich. Aeronautical Division, Akron, Ohio.

PRIVATE GEORGIE GREMLIN WENT HAYWIRE ON THIS

TIRE SERVICE QUIZ

CAN YOU SCORE 100%?

(Pick correct answer from a, b, and c)

1 **The aircraft tire shown in cross-section is . . .**

a. Streamline type.
b. Low pressure type.
c. Smooth contour type.

2 **This one is . . .**

a. Streamline type.
b. High pressure type.
c. Smooth contour type.

3 **All tires and tubes should be properly balanced because . . .**

a. Improper balance spoils the airfoil.
b. Improper balance causes vibrations; uneven tread wear.
c. Improper balance endangers the plane's flight stability.

4 **Proper balance is achieved by . . .**

a. Weighing tire and tube carefully before installation.
b. Placing balance mark on tube next to red dot on tire.
c. Consulting regulation balance charts.

5 **Boots or casing patches should be used only for emergency repairs because . . .**

a. They're apt to block the valve core.
b. They cause serious tube checking or cracking.
c. They cause unbalance, uneven tread wear, and may cause an injury beyond repair.

6 **After a tire is mounted it should be inflated, deflated, then reinflated because this process . . .**

a. Permits the tube to assume its proper contour within the casing and gets rid of wrinkles.
b. Seats the flange.
c. Loosens the valve core.

7 **The Drop Center Rim has a well or depression because . . .**

a. It makes the rim stronger.
b. It permits mounting and dismounting.
c. The increased air chamber increases carrying capacity.

8 **A valve fishing tool is used to . . .**

a. Clean out valve stems.
b. Locate lost valves at night.
c. Keep valves from slipping through valve hole during mounting.

9 **Locking rings should be properly seated before air pressure is applied because . . .**

a. Poorly adjusted ring can fly off and kill somebody.
b. Poorly adjusted ring cuts into tire.
c. Poorly adjusted ring gives false pressure reading.

10 **Approximately how many B. F. Goodrich Aviation Products are being used by our armed forces?**

a. 80. b. 47. c. 25.

WHAT IS YOUR SCORE?

Each correct answer counts 10. 1-b, 2-c, 3-b, 4-b, 5-c, 6-a, 7-b, 8-c, 9-a, 10-a.

This is one of a series of maintenance quizzes prepared for ground crew trainees of the U. S. Army Air Forces Technical Training Command. It is our hope that this series will help all maintenance men get maximum service, safety, and efficiency from military, commercial, and civilian aviation equipment.

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Skyway or Highway

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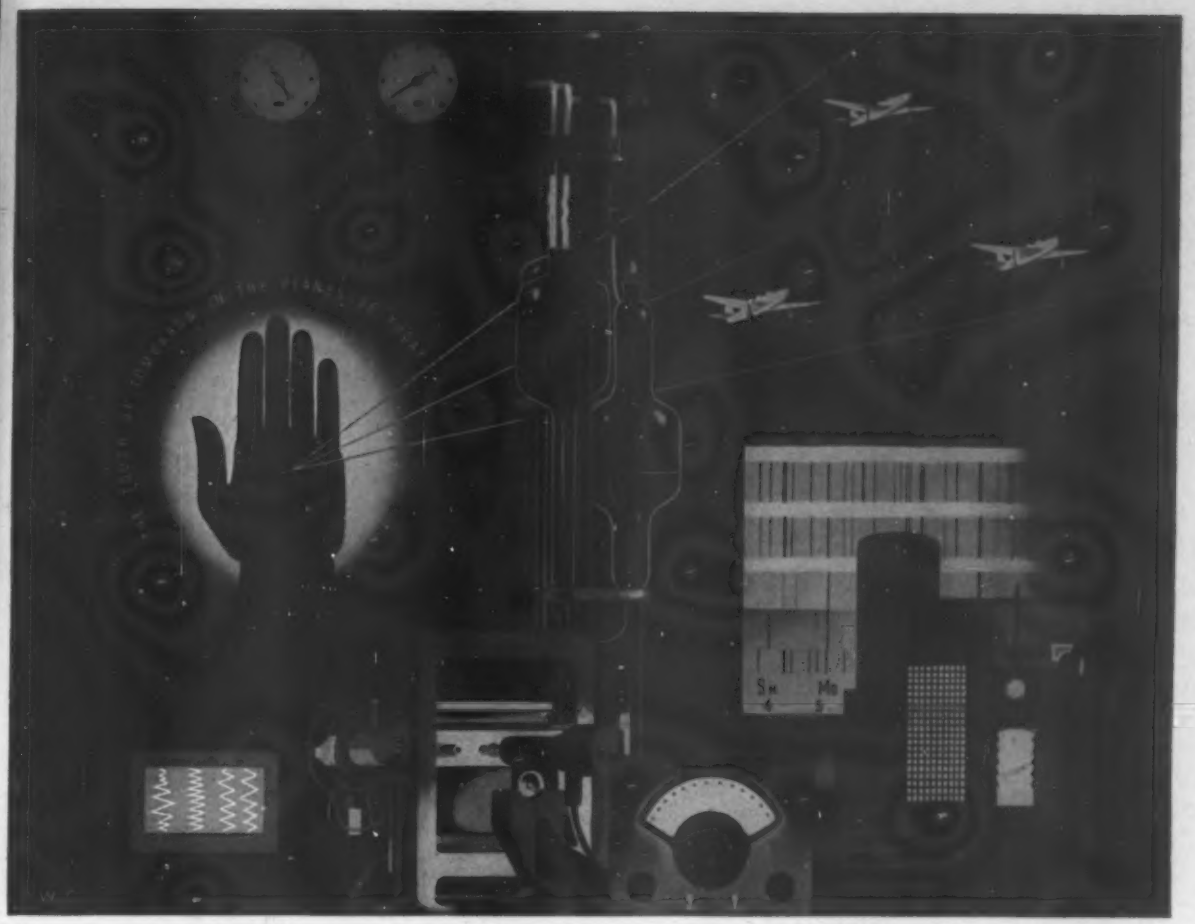
FIRST IN RUBBER



Organizing Atoms for a Better Aircraft Engine

A visitor at the Ranger plant once remarked: "Scratch a Ranger engineer and you'll find a scientist!" In creating the Ranger in-line, air-cooled aircraft engine, Ranger engineers began by concerning themselves with the very atoms of which its metal alloys are composed. They made use of scientific instruments and techniques unexcelled anywhere in the world in scope and precision. And the same advanced metallurgical and chemical laboratory facilities are today guarding the quality of Ranger materials in the rush of war-time production. Spectroscopic, chemical and X-ray analyses of materials and finished parts are as much a part of Ranger production as milling machines, turret lathes and grinders.

All Ranger engines are put through the acid test of actual operating conditions in scientifically equipped test cells. Ranger's experimental test cells can simulate flying conditions in temperatures as low as —70° F. and at altitudes up to 40,000 feet. Some of Ranger's tests on auxiliary devices are not duplicated anywhere in the aviation industry. In Ranger's "flying laboratory"—a tactical war plane fully equipped with scientific test instruments—pilots and engineers daily add new knowledge to all that has been discovered before.

While thousands of Ranger engines are turning in a remarkable record in the planes of the United Nations, Ranger engineers persist in researches which will make even more readable news tomorrow . . . except in Axis newspapers.

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—Geo. Washington's Farewell Address

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Every RCA Aviation Radio Crystal Is a Masterpiece of Accuracy

TO NAVIGATORS of the skyways and ocean lanes a fine chronometer is the ultimate of accuracy. To the expert machinist a good micrometer is the symbol of precision. Both of these instruments are, indeed, highly accurate; yet finer still is the precision required of good aviation radio equipment.

An example of this high degree of accuracy is the quartz crystal plate shown above. Crystals like these are used to keep radio transmitters, and in some cases receivers, operating at their proper frequency.

To do this efficiently the quartz plates must be cut and ground with extreme accuracy. Only very minute tolerances can be allowed. Precision work in other lines ordinarily requires measurements no finer than one ten-thousandth of an inch. But RCA crystals are measured in microns, and fractions of microns, and one micron equals only *40 millionths* of an inch.

A very slight error will make a difference of thousands of cycles in the crystal frequency controlling the oscillator circuit. Conventional measuring instruments are useless for this work. That is why, for production of RCA crystals, RCA engineers have devised special means, such as X-rays, greatly magnified micrometers, and electronic devices.

RCA crystals are made with such precision that operating frequencies can be held to two ten-thousandths of one per cent! *Thus the crystal vibration frequency will not vary more than* 3 *cycles in* 1,000,000.

With wear and aging, mechanical devices lose their initial accuracy. Yet crystals which are properly cut and carefully ground will maintain their original accuracy indefinitely. Thus precision of RCA crystals is maintained at all times, assuring you of permanent accuracy.

So, too, every other factor affecting performance of aviation equipment is worked out with meticulous exactitude by RCA engineers—through every step of theory, every operation in manufacture. That is why aviation engineers say confidently, "RCA Aviation Radio Equipment is dependable. You're 'on the beam' when you consult RCA research!"

RCA

RCA AVIATION RADIO

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— and the menace of SAND

In our African Campaign the R.A.F and mechanised units of the Army have had this extra enemy to fight and conquer — SAND

Our desert troops know what a frost is

By ARCHER BROOKS

Flowers night for approximately spring, up days—known is Arabic fifty.

The sand stings and lashes face and hands like a whip, fills mouth and nostrils, grates behind goggles.

It necessitates in the eyes causing temporary falls out, the deafness, pellets, when the sand-hard springboard the sand are it clogs gun breaches, gets into the gears of vehicles.

NO matter what precautions are taken to shield it, food becomes impregnated with it. It piles like snowdrifts on tents. Until its weight snaps the tent-poles. A wounded man unable to move may quickly be buried by it.

The landscape changes. Little by little, great hills of sand are carried away by the wind, and piled up elsewhere.

Sometimes a ledge of sand, held together by friction of the particles, will stay projected for several feet over a precipice, a dangerous trap for the weary traveller.

Gradually, the long, nerve-fraying sand-storm period passes out. Follows months of blazing sunshine with seldom a breath of a breeze to temper it, when the sand burns one's feet, even through the desert rocks are hot enough to fry eggs.

Their sunrise [illegible] poems or colour [illegible] like a purple [illegible] moon floods the [illegible] sea with an eerie

NO, the desert's not always a land of searing sun and waterless waste. With the rains which fall with torrential fury—filling the wadis (ravines) and leaving pools in the dune hollows, bitterly cold winds sweep across the sandy plains. They bite through the troops' blankets at night and make the pre-dawn stand-to-arms a marrow-chilling affair. The sun is considerably weaker at this time of the year, appreciable warmth. Even a scattering of snow . . . Khamsin's like snow, Omar remember, upon the desert's dusty face ";

If rains remaining and the sun is daily growing stronger, comes a hot, parching southerly wind that gathers the fine loose sand into great swirling clouds as dense as London pea-soup for. The khamsin rages day and

It was on these sands, behind that the thirty-odd officers and men of H.M. armed boarding steamer Tara—shipwrecked on the Libyan coast in 1915—lived for four months before being rescued by the Duke of Westminster's armoured cars, operating against the rebel Senussi.

Incidentally, this was the first time mechanised forces had fought in desert warfare.

In the spring, when no trace of the rains remains and the sun is daily growing stronger, comes a hot, parching southerly wind that gathers the fine loose sand into great swirling clouds as dense as

Archer Brooks' intensely interesting article reprinted by courtesy of the author and the "Daily Mirror."

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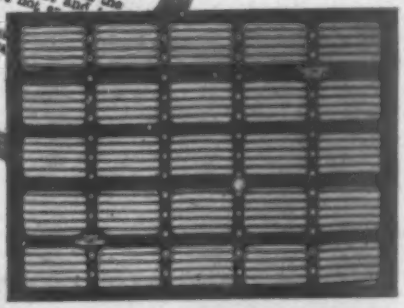

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American Aviation

Bus, Truck Lines Reveal Big Air Plans

Are Expected to Make Determined Fight for Routes

By ERIC BRAMLEY

DETERMINED efforts of powerful bus and truck interests to secure certificates of convenience and necessity authorizing both passenger and cargo air routes are being watched closely by both government and airline officials.

Last fortnight two of the "big timers"—Greyhound Corp. and Keeshin Freight Lines—filed applications covering many thousands of miles. Greyhound seeks helicopter routes, Keeshin asks cargo lines. Their applications bring to 11 the total of petitions now on file with the Civil Aeronautics Board from bus or truck companies.

The Greyhound and Keeshin plans are two of the biggest ever received by the Board from any applicant—airline or anyone else. Indications are that these two companies in particular are in dead earnest about their airline plans—despite the fact that the Board's decision in the American Export Airlines case must be circumvented and despite the fact that the pending Lea bill (Civil Aeronautics Act of 1943) will have just as strict rules governing such situations as has the present Act.

Controlling the operation of air routes by other forms of transportation is the so-called "second proviso" of sec. 408 of the Civil Aeronautics Act, which states: "That if the applicant is a carrier other than an air carrier or affiliated therewith within the meaning of section 5(8) of the Interstate Commerce Act, as amended, such applicant shall for the purposes of this section be considered an air carrier and the Board shall not enter such an order of approval unless it finds that the transaction proposed will promote the public interest *by enabling such carrier other than an air carrier to use aircraft to public advantage in its operation and will not restrain competition.*" (italics supplied).

In its decision last year denying control of American Export Airlines by American Export Lines, steamship company, the Board asserted that ". . . this proviso is extremely restrictive and only those limited air transport services which are auxiliary and sppplementary to other transport operations, and which are therefore incidental thereto, can meet the conditions laid down by that proviso." In a separate opinion, CAB Member Oswald Ryan stated that "a construction of the . . . Act which rigidly limits the participation of a surface carrier in the air transport field to cases where the surface carrier is enabled to use aircraft in its own operation to public advantage is in harmony with the well-established pre-existing congressional policy."

In its second opinion in the Export case, the Board said that "the conclusion that there exists, and has existed for many years, a prevailing Congressional intent that the various forms of transportation should be mutually independent is well documented by legislative history."

The latest committee print of the Lea bill in no way weakens the second proviso of the Civil Aeronautics Act.

Despite this strong second proviso and the Board's philosophy thereon, there is no unanimity of opinion in airline, legal or government circles on what may be the chances of the bus and truck lines succeeding in their efforts. Some officials believe that the second proviso will keep the door shut. Others, however, hold the view that if routes are properly laid out and coordinated with the carrier's surface lines, the chances are very good for success on the part of the bus-truck interests. The Greyhound application, they point out, is tied in almost 100% with the company's surface routes.

Greyhound seeks 78 helicopter routes covering 49,103 miles and serving 1,043 terminal and intermediate points.

The 78 routes sought are: New York-Great Falls, Mont.; Minneapolis-Fergus Falls, Minn.; Annapolis, Md., to Albuquerque, N. M.; Amarillo-El Paso; San Antonio-San Diego; New York-Santa Monica; Salt Lake City-San Francisco; Canadian border to Aberdeen, S. D.; Philadelphia-Denver; Oklahoma City-Houston; Richmond-Knoxville; Nashville-Los Angeles; Birmingham-Ft. Smith; Louisville-Hibbing, Minn.; Denver-Amarillo; Marianna, Fla., to Natchez, Miss.; Richmond-Mexican border; La Grange, Ga., to Opelika, Ala.; Brewton, Ala., to Mobile; Orange-Beaumont, Tex.; Norfolk-Indianapolis; Madison-Hibbing; Detroit-Ludington, Mich.; Detroit-Canadian border.

Other routes are Grayling-St. Ignace, Mich.; Chattanooga-Jonesboro, Ark.; Jackson-South Bend; Ann Arbor-Elkhart, Ind.; Chicago-Peoria; Louisville-Washington, Ind.; Clarksburg-Charleston; Henderson-Durham, N. C.; Hammond-Evans-

(Turn to page 59)

"The Biggest Menace" . . .

C. Bedell Monro, president of Pennsylvania-Central Airlines, when asked to comment on the Keeshin and Greyhound applications to CAB for air freight and helicopter routes, said in Detroit recently that the applications constitute "the biggest menace to our industry, threatening to create transportation monopolies of the worst type. I am interested in Greyhound's contention that helicopter services such as they propose would in nowise compete with existing air carriers but would, rather, serve as feeders of new business to the regular airlines. This is utter nonsense. They would not stop there. Once they obtained operating rights, they would go out and buy the biggest airplanes on the market and start operating between terminals. Nothing could stop them once they enter the territory."

CAB to Re-Open All Applications for New Domestic Airline Routes

ALL applications for new domestic airline service will be restored to the active list, the Civil Aeronautics Board announced June 21.

The announcement marked the first time that the Board has changed its new route policy since Dec. 12, 1941, when it stated that because of the war all applications would be held in suspense.

Foreign routes, however, will not be considered at this time, the CAB said, explaining that "questions of international policy" make consideration "inopportune."

The first step to be taken in connection with the domestic route cases will be the assignment of pre-hearing conferences, which will "permit the assignment of hearings in the fall," the Board said.

The Board's memorandum follows:

"In its previous announcement in this connection the Board has stated that the emergency policy of holding in suspense all applications involving certificates of public convenience and necessity which was originally announced on Dec. 12, 1941, and has been in effect since that date, would be relaxed at such time as might appear appropriate in the light of changed conditions. In order that those awarded certificates may plan for post-war expansion with the greatest certainty possible and in order that actual operations may be inaugurated in time to permit the conversion of aviation equipment and personnel from war to peacetime pursuits with as little delay as possible, it now appears desirable that applications for authority to provide new air transportation services be restored to the active calendar. With these considerations in mind, the Board has now determined to relax its policy with respect to all proceedings involving domestic air transportation.

(Turn to page 59)

Airpower May Knock Nazis Out by End of '43—Damon

ASSERTING that Allied airpower is now on the eve of knocking Germany out, Ralph S. Damon, president of Republic Aviation Corp., said on June 22 that "it now appears possible that Germany will have been removed from the lists by the end of 1943."

This marked the first time that a member of the aircraft manufacturing industry has mentioned publicly such an early date for the possible defeat of Germany.

Speaking before the Rotary Club of Chicago, Damon warned, however, that defeating Japan will take a longer time. "There we are fighting fanatics, not people," he pointed out.

On the bombing of Germany, he said:

"Hitler and his aggressive generals decided at its outset that this was to be an aerial war and even though the United Nations were then totally unprepared to fight that kind of war, we are now on the eve of knocking Germany out and we shall do it largely with aerial tools. Unpreparedness may have cost us many early rounds but now it appears possible that Germany will have been removed from the lists by the end of 1943. I believe this to be true because no nation, not even Hitler's Germany, can suffer the rate of attrition which is now being inflicted on the Nazis and survive for long. The aerial combat box scores are now so definitely in our favor and our constantly increasing production of fine aircraft and well-trained airmen precludes any possibility of those scores being reduced unless by a miracle, and the days of Hitler's miracles have ceased to be. Our Air Forces are now systematically and literally pulverizing the industrial centers of Germany and without her industries Germany cannot fight or even exist.

Cites Bombing Figures

"A short time ago figures were made available showing the comparative bombings of Germany and the United Nations. In 1940, the year that France fell and the Nazis staged the Battle of Britain, they dropped 42,000 tons of bombs on England. The following year it was 24,000 tons and in 1942 they were able to deliver only 3,000 tons. In those same years the RAF figures show that in 1940 they sent 13,000 tons down on Germany and German-held Europe. They more than doubled this in 1941 with 31,000 tons and nearly redoubled it again in 1942 with 50,000 tons. It is my guess that the RAF and our own Eighth Air Force will drop over 200,000 tons of bombs on Germany and occupied territory in the course of the current year.

"Progressing with the increased bombings is our increased production of military aircraft. Currently the United States is producing planes at the rate of 7,000 per month and it is estimated that the British are producing planes at a rate better than 2,000 a month. Added to this is the Russian plane production. The exact figure is probably known only to the Russians themselves, but from past production performances and the activity of the Soviet air force I hazard a conservative guess that Russia is now producing 3,000 planes a month. As the United Nations aircraft production continues to increase, the most expansive estimate today can give Germany, on the other hand, credit for only 2,000 planes a month and Italy and Japan less than a thousand each. In other words, the United States alone is producing each month nearly twice as many planes as all the Axis together, and all United Nations production is three times that of the Axis. As our production strength continues to expand and that of our enemies continues to shrink by attrition from bombing and by shortages of material and general weariness from war, the present ratio of three to one in our favor should change to better than five to one in our favor before the end of this year and of course much better than that so soon as Italy and Germany are knocked out and only Japan remains.

Sees Nazis Defeated

"With such production records in prospect and with the stepped-up tempo of the bombings of the Germans, it is hard to visualize anything but the elimination of the Nazis, at least during and probably before 1944. What we are now doing is cutting the German communication lines, should it be necessary to actually invade German-held Europe. However, due to the success of the United Nations air forces, the invasion may never come about because no army, regardless of its potency, can fight away from its home base without well organized communication lines and these are fast disappearing for the Germans now under bombings which are routine and severe. Germany, being a militaristic nation and not a suicidal race such as our other enemy, the Japs, will soon come to the realization that her armies defending the coast lines of France, Holland, and Denmark are fighting in front of a nation whose industry has been demolished and whose morale has been dissipated.

"To some this may sound overly optimistic but I have tried to be both rational and practical in my thinking. In the event my assumptions are correct, our troubles are not by any means at an end. It is far more difficult to make any approximation as to when we will throw Japan into defeat. There are so many factors which are utterly different in the Asiatic theater. There we are fighting fanatics, not people. We are forced to extend our supply lines twice the distance they are to Europe. In addition we must not only supply our ally, China, but we must supplement whatever military production Australia has been able to establish. Those factors in combination do not make for an easy war but whether Japan is able to struggle on through two more years or for even longer. I will make another prediction and that is that in the Japanese defeat our airplanes will be largely responsible. . . . With an increasing concentration of United Nations long range fighters and bombers in the Far East, the Japanese can expect their cities to undergo an identical manner of pulverizing such as the Germans are now receiving."

Seibel in Richmond Times-Dispatch

The Face That Launched 100,000 Planes

Damon praised the Truman Committee for doing a great public service. He stated that it has been "diligent in pursuing the course of its investigations to see that the taxpayers get value received from the various defense industries. A bi-partisan committee composed of Senators capable of divorcing themselves from politics to really serve the public, the committee has in general been judicious and constructive in whatever criticism it has leveled at industry. Their findings have not been kept secret, but made available to the press for dissemination to a public which is certainly entitled to know how well its dollars are providing arms for its sons and husbands."

Speaking of the interdepartmental committee on U. S. civil international aviation, Damon said:

Urges 'American' Plan

"I would urge the committee to foster an air policy which will in no way disrupt the continuity of our American principles of business based upon the right of free enterprise and competition. They are the stimuli by which this country has grown and on which it still must depend. Should the committee do this and refute those who are urging the adoption of a paternalistic attitude towards aviation, then you may rest assured that aviation will closely approach the expansion we now anticipate.

"It has been rumored in the press that the sub-committee have already adopted a recommendation based upon no monopoly either public or private of world routes and a program of no government ownership. If these facts are correct, then the sub-committee is to be congratulated and the adoption of the recommendations by the principal committee should become an accomplished fact because with such sound fundamentals as a basis the chips will well fall where they may."

Patterson Reports Plane Output Climbs, Arms Lags

Aircraft production was not involved in the charge of Undersecretary of War Patterson on June 19 that war production had suffered a relapse.

Criticizing both labor and management for "overconfidence and complacency", he declared production of supplies for the Army ground forces fell 5½% below actual needs in May, but added that aircraft manufacture increased 40% in May, compared with January, to a total of 7,000 Army and Navy planes.

Although WPB Chairman Nelson declined to enter the ring with Patterson, a WPB spokesman rebuked the secretary for "erroneously supposing that the entire war production effort has suffered a relapse." Overall arms production went up an estimated 2% in May and ground forces production is only about a sixth of the total, the spokesman observed. He concurred with Patterson's assertion that a great acceleration must be achieved if the nation is to exploit its military victories.

"Management and labor must deliver the supplies on schedule and as planned, or the opportunity to exploit military successes will be lost," said Patterson.

He said production lapses mean that men in training camps will be denied needed equipment so that shipments may be maintained to men overseas or about to move to fighting fronts.

"If the situation continues," he added. "even our overseas troops will suffer from shortages of critical equipment. The Army will not even have its basic equipment by the end of the year. To permit a shortage to develop even temporarily into a too-little-and-too-late situation will cost thousands of lives tomorrow.

"The Army supply schedule, to which all military plans for defeating the Axis are geared, calls for a continued increase throughout all of 1943. This rate must be maintained if we are to reach our goal."

The secretary blamed overconfidence inspired by the Tunisian victory for the relapse. He said the Tunisian victory means a speed-up in the "already crowded timetable of military operations."

"Failure to appreciate the gravity of our situation and the need for continued increased efforts to meet our continually increasing needs is evident by the coal strike, the Akron strikes, and other stoppages in war and related industries," he said.

Patterson charged "certain manufacturers" with diverting too much time, thought and energy to the design and development of competitive civilian non-essentials.

Publish Pilot's File

A simplified Pilot's Information File, containing all the basic regulations, facts, and figures a pilot needs to know, has been published by the Safety Education Division, Army Air Forces Flight Control Command. All Army personnel on flying duty who hold aeronautical ratings are required to certify before each flight that they have read, and understand, all instructions and information contained in P.I.F.

Low in New York Times

Air Raid Shelter

30,000 Casualties Moved by Air from Battle Zone

Thirty thousand Allied casualties have been evacuated from battle zones in all theaters of the war by American transport planes which were converted into flying hospitals after delivering troops and supplies to the front, it was revealed last fortnight by Brig. Gen. David N. W. Grant, air surgeon of the Army Air Forces. Gen. Grant, who spoke before the House of Delegates of the American Medical Association in Chicago, predicted that helicopters may soon be used in this service.

The air evacuation service is directed, and the flying hospitals are staffed, by special teams of doctors, nurses, and enlisted men trained by the air forces, he said. Each plane carries at least one doctor or nurse to give medical treatment, including injections of blood plasma, if necessary. The teams, consisting of five doctors, 25 nurses, and 19 enlisted men trained as medical technicians, are now serving with the air forces in all major theaters of war, and one new unit is being sent into action every month, Grant said.

The air evacuation service helped save the lives of 13,000 sick and wounded American troops in the Tunisian campaign alone, the general reported.

Plane Development Hardly at Half-Way Point, Says Nelson

We have "hardly reached even a half-way point" in our aircraft development, but the strides we have already made could be imagined by few people three or four years ago, WPB Chief Donald Nelson stated before the House Appropriations Committee. Nelson appeared to justify requests for WPB funds for the coming fiscal year.

He said to Congressmen: "From both the military and the production points of view, I am certain that we are in the midst of one of the greatest and most powerful developments in history, the development of an almost incredible striking power by means of aircraft. By striking power I refer not only to bombers and fighters, but also the great fleets of cargo planes, built and building, which will permit us to concentrate our attacks upon an ever-increasing series of vital enemy targets.

"Three or four years ago, few people were able even to imagine the strides which we already have made. Now, however, it is a matter of almost daily news-reporting that our air power is at every hand delivering crushing blows against our enemies. This achievement is in no small part a production achievement, and we have hardly yet reached even a half-way point. But I can report to you that from now on expenditures for our air force program will exceed by far the expenditures for any other single military category, reaching before the end of 1943 an annual rate of some tens of billions of dollars."

Airfields in 4 Days

The airfields which served the Allies in the battle of Tunisia were built in four days, the War Department reported Army Service Forces engineer units chose to build new fields rather than use captured German fields because the latter were found to have been sown with mines and had been cut up with plowing. The speedy construction was made possible by favorable conditions of terrain and soil, and the fact that the rainy season had ended. On the other hand, it was accomplished in spite of having insufficient personnel, the announcement said.

Marine Glider: First picture released of one of America's newest invasion weapons, an amphibious transport glider for the Marines produced of molded plywood and other non-strategic materials by Allied Aviation Corp.

Airpower 'Comes of Age' as Result of Sweeping Victory

Officers Describe Brilliant Tactical Use of Aircraft

By WILLIAM THOMPSON

THREE high ranking officers of the Army Air Forces, as well as Secretary of War Stimson, acknowledged in separate press conferences last fortnight that air power had won its independence as a fighting force with the conquests of Tunisia and Pantelleria.

"Airpower has come of age," declared Maj. Gen. George E. Stratemeyer, chief of the air staff of AAF. "The battle of Tunisia was the first large-scale demonstration of the irresistibility of air power using all its capabilities in an integrated pattern. The conquest of Pantelleria was the first and most graphic demonstration of the destruction of a large and staunchly fortified enemy bastion by air.

"It is clear now that bombardment aviation is not an extension of artillery. It is a vital new weapon in its own right, fulfilling a role possible to no other weapon."

Brig. Gen. E. P. Sorensen, assistant chief, AAF Staff Intelligence, said the Tunisian campaign "will live in history."

"This action was a beautiful example of each force *serving in its proper place*," he asserted. "It was a convincing example of the effects of strategic bombing. Frontal assaults upon such a powerful enemy could succeed only in causing him to withdraw, except where a break-through might permit encirclement of certain forces. Instead of that common result, the German defense disintegrated spectacularly, as from interior decay. Individual units were intact, yet they wandered around looking for Allied forces to whom to surrender."

He recalled that in the spring and summer of 1942, the RAF maintained superiority over the German air force in Libya and Egypt, but though this helped considerably, it was not enough to prevent the German advance to the edge of Alexandria.

"There was something missing," he said. "Studying the Tunisia campaign we see the piece that was missing, and we can identify it as the air action which prevented the delivery of essentials to the African area."

Sorenson said certain features of the American concept of air force, such as the "refined" process of singling out military objectives, is tending to lift air power "from the depths of Axis brutality."

"The German concept of air force is too limited," he said. "It contemplates the use of airplanes for only three basic purposes: (1) to attack enemy surface forces at and near the line of contact; (2) to transport men and equipment, sometimes well behind enemy lines; (3) to defend their own forces and territory from similar air operations of the enemy."

This worked beautifully until Germany tried to use the same weapon, one designed and trained for technical use, in an all-out strategic attack upon a major nation—Britain, he observed.

"Germany visualized strategic bombing of Britain as being the same as the helter-skelter bombing and strafing of front line forces," he said. "She thought that she would smother England under a rain of bombs so solidly that the traditional English will would be broken along with British industrial might. The idea was there, but the method was wrong.

"The lesson is now written in history for all to heed. Efficiency expressed in the military maxim 'economy of effort' is an epitome of the air concept upon which the AAF has based all of its efforts, and this is best attained in strategic bombing by scientific target selection and precise placement of bombs where they will do the most real damage. This demands a complete analysis of enemy industry to determine the relative importance of each type of industry. Such an analysis results in the discovery that a relatively small percentage of the many hundreds of industrial units need be destroyed in order to ruin the enemy's ability to wage war on modern terms."

At his regular weekly press conference on June 17, Secretary Stimson said the value of concentrated air power "has been demonstrated."

"The Allies have proved they excel the enemy in knowledge of how to use air power. It appears our tactical and strategical employment of air power is superior to the enemy's," he said. "This is a development that holds great promise for the future."

London Daily Mail

Day and Nightmare

Tactical Air Force Created

The British Air Ministry announced last fortnight the creation of a tactical air force for all the home-based Royal Air Force. The Air Ministry said it was formed as a result of experience gained in the African fighting. The new force, in which will be merged the RAF Army Cooperation Command, will be commanded by Air Vice Marshal John Henry D'Albiac, who has seen service in England, India, Egypt, Trans-Jordan and Palestine as airman, soldier, sailor, and marine. This step is a natural sequel to build up the RAF on the lines of the African tactical air force, including all types of squadrons that had proved suitable for the direct support of armies in the field together with the necessary headquarters and maintenance units and signal organization, the announcement said.

Returning from Tunisia, where he was deputy commander of the Northwest African Tactical Air Force, Brig. Gen. Laurence S. Kuter described how the NATAF broke out of its restricted battle areas and blasted the enemy by theater-wide strokes, penetrating deep into enemy territory as often as it attacked the shallow areas just ahead of troops.

"This is the pattern of the future," said the 38-year-old Kuter. "This is the way in which air power in collaboration with armies in the field will beat the enemy and win the war. The importance of those two commanders of land and air forces (Gen. Alexander and Air Marshal Coningham) living side by side in the same camp, eating in the same mess, and planning and operating daily on *equal* terms, cannot be overstressed."

Gen. Kuter revealed that the battle of Tunisia began, not on April 22, the day the ground forces pushed off, but on the night of April 18 and 19.

"On that night we employed 90 night bombers against German airdromes," he recalled. "We had guaranteed to reduce the German air force to relative impotency by dawn of the 22nd. Our total efforts destroyed 112 German airplanes in two days. We destroyed many JU-52s and many of the escorts. The spectacular destruction of 20 ME-323 six-engine transports on the 22nd, which, incidentally, were carrying the equivalent of a German regiment into Tunisia, was the continuation of our plan to knock the Luftwaffe down and keep it down during the period of the ground movement forward.

"On the 22nd, and from then on, we had free fighter squadrons sitting over the German airdromes daring the Germans to get up. On the 22nd and 23rd, they did try to get up and were knocked back down. During this period, they were kept down by a small proportion of our fighters. The great balance of our force at this time was steadily in front of the main effort of the 1st Army."

Gen. Kuter termed the attack during this period "heavier than any air force had ever delivered in battle in collaboration with an attacking army."

"Our effort increased to a crescendo on May 6 on the final drive from Medjez el Bab to Tunis," he said. "On that day we

(Turn to page 34)

Plastic Cockpit Ventilator, Made of Lumarith, Reduces Weight in Republic's P-47 Fighter Plane

Lumarith saves weight!*

A CELANESE* PLASTIC

REPUBLIC'S THUNDERBOLT has already written some amazing air history in the matter of performance. But that is but a curtain-raiser to the history which it will write in combat. Naturally, any manufacturer has a right to feel proud of contributing a part or a product for this great plane, but this is not a message of pride. It is a reminder of what Lumarith plastics can do in cutting down weight and raising altitude ceilings. The ventilator tube of Lumarith molded plastics is a sample of this important type of contribution.

Lumarith plastics have the military stamina and versatility to meet the exacting requirements of the aircraft industry. The services of our engineers and technical service departments are on call for assistance in solving problems in plastics. Celanese Celluloid Corporation, *The first name in plastics*, 180 Madison Ave., New York City, a division of Celanese Corporation of America Sole Producer of Lumarith* and Celluloid* plastics . . .

Representatives: *Cleveland, Dayton, Philadelphia, Chicago, St. Louis, Detroit, Los Angeles, Washington, D. C., Leominster, Montreal, Toronto, Ottawa.*

**Trade Marks Reg. U. S. Pat. Off.*

PARTS
and the peace

THE planes and ships streaming from America's industrial centers are not just implements of war. They are working parts of the coming peace —an economic and sociological peace wherein the freedom-starved peoples of the world will be united by ties of common interest, purpose, and transportation.

Airpower has bombed out distances! The fellowship of armies today sounds the keynote of international cooperation tomorrow. War materiel, exchanged so freely between nations, foretells of an expanding international trade in the future.

The men at the front will become our economic and business leaders. Great names in war production will remain great names in the manufacture of peacetime products. By building trainer planes and making high grade parts for the world's fastest and best fighting and bombing planes, Fleetwings has earned its worldwide reputation.

And, while Fleetwings' production records climb, the discoveries and developments of Fleetwings' engineers give exciting promise of peacetime application as well as immediate war use.

Whatever the trend, whenever the time comes, there will be no wasted time at Fleetwings. Signing off war and taking on peace will be just a matter of shifted emphasis.

FLEETWINGS

Plant No. 1

Navy Air Bureau Will Use 20,000 Women This Year

CLOSE to 20,000 WAVES will be employed in the Navy's Bureau of Aeronautics by July, 1944 of a probable total of 68,100 officers and enlisted women in the Navy. Navy officials believe the 15,000 or 20,000 women who will be able to fill aviation jobs indicate the adaptibility to new skills of the members of the Women's Reserve.

Original plans provided for a total of 10,000 enlisted women and 1,000 officers, but by the end of 1943 this group will be expanded to 41,000 enlisted and 7,500 officers. Of these, 1,500 officers and 12,000 enlisted WAVES will be on duty in BUAER alone.

WAVES are being trained and are taking over a variety of specialized aviation jobs today. During this year, about 3,800 enlisted WAVES will be trained for aviation ratings. These will include 500 Link trainer operators, 250 aerographer mates, 2,300 aviation machinists mates, 225 parachute riggers, 300 aviation metalsmiths, 100 control tower operators, and 100 operators of synthetic training devices.

Girls with general enlisted ratings are serving in aeronautical activities as well. Yeomen, storekeepers, radiomen, hospital corpsmen, pharmacists mates, miscellaneous specialists and seamen are already "aboard" Naval Air Stations and Training Centers and more will continue to join them, the Navy said.

Training schools for aviation ratings are centered at four Naval Air Stations at present. NAS, Lakehurst, N. J., trains parachute riggers and aerographers mates; aviation machinists mates are instructed at NAS, Memphis, Tenn.; Link trainer Instructors and control tower students at NAS, Atlanta, Ga.; and aviation metalsmiths and machinists mates at NAS, Norman, Okla.

In addition to attending training schools, WAVE seamen can strike for ratings following the same procedure as enlisted men. "Any ratings included in complements of shore activities within the continental limits of the United States and duties which appropriately trained women may be expected to perform are open to WAVES." If the bill, passed by the House and now being examined by the Senate, to permit WAVES to go overseas, should be passed there might be an additional need for WAVES at Naval stations in other countries.

Arctic Guide Announced

"Arctic Emergencies," a guide to the Arctic Circle, will now accompany every Army Air Forces pilot required to fly across the top of the world. It is a small orange-and-blue book prepared by the Safety Education Division of the AAF Flight Control Command, and is a companion book to "Jungle and Desert Emergencies," distributed early in May. Authorities on all phases of life in the Arctic were consulted in its preparation.

War Agencies Review

War Production Board

"U. S. production of combat, transport and trainer planes during May reached the unprecedented total of nearly 7,200 planes of all types," Charles E. Wilson, Vice-Chairman of WPB announced. "Total frame weight was approximately 60,000,000 pounds and the output will be substantially larger in June." Wilson prophesied that the production curve would continue its steady rise thereafter until it meets the maximum available supply of aluminum, copper and alloy steel required to turn out finished planes. When full production is reached, he promised, more than 120,000,000 pounds of aircraft would be turned out each month.

In another report, Donald M. Nelson, Chairman of WPB, stated that although the output of aircraft and related munitions in April reached a total of $1,649,000,000 or 32% of all munitions produced, it did not quite meet the month's objectives. Emphasis continues on large bombers, he said, output of which lifted in April almost 18%. Output of one-engined Navy fighters was boosted by nearly 50%. "How difficult that aircraft program for the balance of 1943 will be can only be judged from the fact that in the first four months only 19% of the year's objective for combat planes was attained, 20% for service planes and 36% for trainers. As greater emphasis is placed on large bombing planes, however, extensive new facilities for their manufacture will become available. The rapidity with which we can bring the new plants into high production will determine partly our success in reaching goals."

In a formal report to the President, Donald Nelson stated: "The value of aircraft and related munitions increased from $2,200,000,000 in 1941 to $9,200,000,000 in 1942. A total of 47,634 airplanes was built during 1942 as contrasted with 19,433 during 1941. The attempt to fulfill the original 1942 program for military planes—the early objective called for 60,000—ran into difficulties. Shortages developed in machine tools and several critical parts and accessories. Some fabricated materials—types of aluminum products and alloy-steel forgings, for example—were bottlenecks, and there were some shortages of skilled workers . . . Throughout 1942 aircraft and related equipment comprised about 30% of total munitions. During the year certain types of aircraft (bombers) took precedence over others as the result of war needs. During the year the output of spares, aircraft ordnance, and other equipment and maintenance items increased more rapidly than production of planes."

Value of war industrial facilities financed with public and private funds reached $19,339,000,000 by the end of March, WPB reported. This included all projects for which contracts had been let since June 1940. Virtually all projects designed for war purposes have been placed under commitment, except those which may be necessitated by future modifications of the military program or equipment model changes and those required to maintain the war plant at capacity operation. Second largest item was for aircraft, aircraft engines, parts and accessories, for which $3,326,628,000 has been committed. In this, 7% of the financing was from private funds.

Charles E. Wilson, Vice-Chairman, stated that if incentive pay plans could increase production 10% in the aircraft industry, "the need for 100,000 additional workers could be overcome." However, he added, WPB hesitated to recommend use of the plans until it was sure that raw materials would be available to meet stepped-up schedules.

Instructions for preparing Bills of Materials under the Controlled Materials Plan have been simplified and are contained in an instruction book available from WPB regional offices.

The first three warehouses authorized to stock and deliver aircraft hardware, valves and fittings under the recently Limitation Order L-296 are named in Directive 1 to that order.

Priorities Regulation No. 3 governing the application and extension of preferences ratings, has been amended to provide uniform methods in applying ratings to obtain preferential use of processing and fabricating facilities.

War Manpower Commission

THOUSANDS OF ENGINEERS on jobs not essential to the prosecution of the war must transfer before the end of the year to more essential activities where a shortage of qualified engineers threatens to become acute, the National Roster of Scientific and Specialized Personnel of the Commission's Bureau of Placement announced. There should be an increase from 40,000 to 50,000 in the total number of engineers in essential civilian work and in the Armed Forces. Most acute shortages of engineers occur in the field of electrical, radio, mechanical, aeronautical, marine and industrial engineering. A shortage also exists in the fields of chemical, metallurgical and sanitary engineering.

The senior classes in all engineering colleges numbered only 17,000 for the academic year 1942-43, the report stated. Of this number, 6,400 were committed to the Armed Forces through the enlisted reserve programs.

Figures released by WMC show a slow but steady increase in the use of Negro workers in war plants throughout the country. "Negroes comprised 5.8% of the 12,000,000 workers employed in establishments reporting to the United States Employment Service in July, 1942. In March, 1943, there were 937,000 non-whites employed in 16,000 establishments, representing 6.7% of the 14,673,000 employes. Month to month changes showed a steady increase in the number and proportion of Negroes employed.

"While more Negroes have been employed in nearly all war industries, the increase has been uneven; slight in some instances and marked in others. In the aircraft industry Negro employment increased 96.1% in comparison to a total employment increase of 35.4%."

The aircraft industry will be only partially affected by WMC's move limiting occupational deferment of men between 18 and 25, who are not fathers, to six months. The revised instructions do not limit the deferment of men of high skills and professional qualifications in jobs which are exceptionally important to the war effort and extremely difficult to fill, Government officials stressed.

Federal Security Agency

Vocational training enrollment in the U. S. shows a steady increase, according to the latest figures available from the United States Office of Education. "Enrollments in Federally aided regular vocational classes reached 2,629,733, an increase of 200,698 over enrollments in 1940-41.

"Enrollments in the program of Vocational Training for War Production Workers continue to increase. Since July 1940, there have been 4,555,826 enrollments. In March, 1943 it is reported that 287,396 persons were being trained. There is an increasing tendency on the part of war production employers to hire beginning workers and refer them to the public vocational schools for short intensive courses."

"Forty-two states are ready to get their child-care programs into full operation almost immediately upon passage of this bill," Charles P. Taft, Director of Community War Services, told the Senate Committee on Education and Labor, in discussing the War-Area Child-Care bill. The measure authorizes the expenditure of $20,000,000 a year for payments to States for programs for the development and operation of child-care programs necessary to assure the availability of women for employment, where essential to the prosecution of the war.

CONRAD CAMPBELL

Navy Devises Ways to Cut Cargo Waste

By BARBARA B. C. McNAMEE

NOTEWORTHY strides are being made in the saving of weight in air shipments by scientific packaging and continuous studies undertaken at Naval Air Transport bases which point the way for extension of these practices into the full field of air transport.

Major improvements already effected by NATS shipping experts have been the development of new techniques of securing cargo and substantial reductions in tare weights (the difference between the weight of the box and object within). The Navy feels that there is still much to be done and is attempting to tackle the problem at its origin by educating shipping officers in proper handling and use of appropriate containers for air-borne cargo.

From its inception in December, 1941, Naval Air Transport Service has been attempting to reeducate old-line shippers to reduce the weight of packing materials used on Navy cargo moved by air. This job was made substantially easier by the many commercial airline men who volunteered their services and experience to the task of transporting Navy personnel, cargo and mail to overseas bases.

Naval experience in cargo handling led to the use of special mesh nets to secure cargo inside the plane—the reverse of the Navy's method of loading cargo onto a ship with nets. Commercial experience made possible such feats as reducing the weight of a PMB wing tip float which arrived at the airfield weighing 820 pounds to a mere 125 pounds by uncrating. Combined efforts taught NATS that 50 to 70 packages, totaling 1,800 to 2,000 pounds, can be stowed in a 6 by 4½ foot area.

NATS had to perform a radical rearrangement of Navy cargo-handling techniques. For years, 99% of the material shipped by the Navy has been packed to guard against rough handling by railroads, loading and unloading into ships,

(Turn to page 24)

Repacking enables NATS to transport up to 35% more air cargo. Photos 1 and 2 show two aircraft tires crated for shipment. Removal of wooden crates saves 23 pounds, makes handling easier. Photo 3 is packing material removed from tires and aircraft parts. Original heavy steel-bound 2-inch plank crate was discarded for ¾-inch plywood box in Photo 4. In Photo 5 wooden crate of 2-inch planks reinforced by 2 by 4 boards, gross weight 326 pounds, was recoopered into 4 cardboard cartons totaling 244 pounds.

BOB JONES is a "trouble shooter" for an aircraft manufacturer, an expert at breaking bottlenecks. One turned up on a midwest assembly line last night, so Bob put his tool kit and himself on the first outbound Airliner. He'll be on the job in a few hours and the line will start up again.

MADELAINE MERRILL, movie star, sold a million in War Bonds at a rally in Boston last night. Tonight she will try to beat that record in New Orleans. On this tour, Miss Merrill is traveling by scheduled Airliner to every important U. S. city, *gaining* precious days and weeks for her important work on the War Bond drive.

They Get There *FIRST...* By Air

SEAMAN ED GORDON'S orders read: "Report San Diego Naval Base Saturday." That means tomorrow. But the Airlines will get him there with time to spare—and would, had he been ordered to any base in the U. S., for the Airlines serve every important city in the nation as well as more than sixty foreign countries.

J. L. ROBERTSON bought some special dies in New York for his Texas war plant. They're riding in the cargo compartment up ahead, along with other important war shipments marked *"Rush by Air Express."* Mr. Robertson has learned that whether it's men or materials, when speed is essential — *Air Transport gets there first.*

MARK ANDREWS, star reporter, is on his way to make a trans-Pacific hop in a "flying freighter," a transport plane operated by the Airlines for the Army or Navy Air Transport service. Andrews' dispatches will tell the story of how Airlines personnel are speeding vital fighting supplies to every front in this global war.

When you travel by Air *make reservations early; please cancel early if plans change.* When you use Air Express *speed delivery by dispatching shipments as soon as they're ready.*
Air Transport Association, 1315 Massachusetts Avenue, N.W., Washington, D.C.

HELP YOUR OWN, OR YOUR NEIGHBOR'S BOY . . . BUY BONDS!

THE AIRLINES OF THE UNITED STATES

AIR TRANSPORT GETS THERE FIRST . . . PASSENGERS . . . MAIL . . . AIR EXPRESS

Navy Cuts Cargo Waste

(Continued from page 22)

and immersion in salt water. Standard packing materials at Naval shipping depots for over-ocean cargo have been inch-thick wooden boxes supported by two by two or two by four lumber. It was obvious that the unnecessary additional weight created by these containers must be eliminated.

Lieut. (j.g.) Charles Q. Mohan of the NATS Transportation Office has described for *American Aviation* the steps which had to be taken and the progress which has been made in the Navy's battle to ship as much material as fast as possible to its fighting forces overseas.

Several basic facts about air transport had first to be pointed out to shipping officers. Airborne cargo receives very gentle handling compared to surface transportation, primarily because rough handling might damage the aircraft more than the material shipped. The secure lashing of cargo to the "deck and bulkheads" of the planes prevents any shifting in flight. Cargo handled in these ways requires very little packing protection.

As additional incentive to observing these fundamental principles, it was discovered early in 1942 that shipments arriving at overseas bases by air were found when unpacked to weigh less, in many cases, than the material in which they were packed—that is, better than 50% tare weight shipments. A plane carrying 8,000 pounds to an overseas base is clearly carrying only 4,000 pounds of actual cargo, when 50% of the payload is tare weight.

Transportation was an extremely serious problem in 1942. The submarine menace was acute, causing large reductions in surface transportation overseas both through the loss of vessels and the desire not to expose important materials to dangerous risks. At the same time production of planes was not nearly equal to demands from the fighting fronts. Since additional planes were not available the only immediate solution was to increase the space on planes already in operation. All unessential equipment was removed and then began efforts to reduce the unnecessary weight of packing material.

It became increasingly clear as the war continued that there were several factors creating an urgent necessity for this action. Besides reducing the weight and bulk of articles being shipped by air, it was necessary to conserve on packing materials which were beginning to grow scarce.

A primary obstacle encountered was that cargo shipped, for example, from Detroit to Honolulu might go all the way by air, or part way by surface and part way by air. The only way to overcome the situation presented by mixed modes of transportation and their attendant needs for various types of packaging appeared to be the establishment of offices to repack the cargo at ports of embarkation. Recoopering was selected rather than packing the shipment for air transport at the point of origin for three main reasons, according to Lt. Mohan: (1) only a small percentage of materials goes overseas directly from the manufacturer; it is usually consigned first to a Naval supply depot and distributed to Navy recipients from there without being repacked; it is impossible to determine which shipment would go overseas and which would not; (2) only a small percentage of such traffic actually travels 100% by air; in general it is carried by surface means within continental United States. The final decision as to which overseas cargo will go by plane and which by ship is usually made at the port of embarkation; (3) repacking at the port of embarkation affords an opportunity to inspect material going overseas to insure that only undamaged and faultless material is sent.

The Navy's shipping office, the Bureau of Supplies and Accounts, organized and set up recoopering offices at San Francisco and at Miami. A third office is now being established in New York. Their purpose is to examine every cargo shipment and to repack them to eliminate excess tare weight.

Statistics obtained from these offices exhibit conclusively the success of their methods. During June, 1942, 243 shipments were recoopered at San Francisco, effecting a total saving of 8,669 pounds—the approximate payload of the Navy's cargo seaplane PB2Y-3R. This saving in weight was accomplished by removing heavy wooden crates from the cargo and repacking with cardboard cartons, heavy wrapping paper, or burlap. During August, 1942, the San Francisco Office saved 7,572 pounds and in September, 14,052 pounds.

Reductions are even more spectacular at the Miami recoopering office. During a recent two-week period, 22,906 pounds of cargo was repacked to 18,220 pounds, a saving of 20%. The cost of shipping this 4,685 pounds saved by commercial air express would be about $4,186. The material used by the Navy in recoopering cost $1,079, a saving of $3,107. When considering the amount of Navy material which moves by commercial air services both inside and outside the country, these figures indicate the amount of money which could be saved by proper packing for air shipment.

During May, 1943, 38,912 pounds were saved by recoopering 106 shipments at Miami; this saving approximates the available load of 8½ R4D's (DC-3s), the plane most predominant in air transport services. Included in this 38,912 pounds of tare weight saved was one shipment of aircraft engines weighing 26,625 pounds gross, reduced to 8,862 pounds, saving 17,763 pounds; a shipment weighing 14,860 pounds gross reduced to 5,000 and another shipment weighing 10,565 pounds gross reduced to 6,615 pounds, saving 3,950.

Although recoopering action has resulted in an average reduction in tare weight from 20 to 35%, NATS officials feel their job has just begun. To increase efficiency and reduction even more they urge education for all shipping officers. The Bureau of Supplies and Accounts has established in Washington a special section called Containers and Material Handling Section whose primary function is the proper handling of Navy material and the development of containers for specific jobs and specific materials. It is this section which has undertaken to educate shipping officers and acquaint them with the problems peculiar to air-borne cargo. Extensive research on loading and securing cargo both by NATS and by commercial airlines has done much to reduce potential damage to cargo enroute, which reduces the need for protective packing, which, in turn, reduces the tare weight, making available additional space.

Officers and enlisted men assigned to duty in the three Bureau of Supplies and Accounts Recoopering Offices are sent to the school on packing operated by Forest Products Laboratory at Madison, Wis. Information on packing, handling and marking is distributed to shipping offices by the Bureau of Supplies and Accounts, which constantly investigates the field of new, lightweight, durable, and inexpensive packing materials.

NATS is working hard at its recoopering job, but its officers dream of the day when their efforts to reduce tare weights will result in the packaging of many products entirely for air shipment and the recoopering of these shipments if surface transportation is used.

Official U. S. AAF Photo.

Bedding a B-25: Members of the Eleventh United States Air Force, who are making life miserable for Jap invaders of the Aleutians at their Kiska Island base, are shown putting a B-25 to bed by covering its wings and engine. Note the steel mat landing field.

MODERN ATLAS

It is a small world which the man in aviation passes on to our children today—far smaller than the globe which he inherited. The new generation will reduce still more the huge burden of ancient Atlas, as cargoes move swiftly by air to bring all parts of the earth closer together. Wright Engines, which have pioneered the Air Age, will power even greater globe-shrinking transports to come.

LIGHT · COMPACT · POWERFUL

Wright
ENGINES

THE DETROIT FREE PRESS—

Pound Saved in Plane Is Worth $2,000

The light metal-wise aviation industry is making practical application of the maxim about a penny saved, and has even paraphased it to read: "A pound saved is $2,000 additional earned."

A pound reduction in weight in a plane like the DC-3 increases revenue during its operating life approximately by $2,000.

This lesson in flying thrift was given by L. T. Miller, of the Glenn L. Martin Co., Baltimore, at the SAE National Aeronautic meeting in New York Thursday.

Mr. Miller, in his speech reported in the above news item, pointed out the value of weight saved in a *commercial plane*. "When *military* operation is considered," said Mr. Miller, "the result can be even more staggering."

BOOTS AIRCRAFT NUTS, fabricated from sheet metal and having all the tensile strength of machine nuts, weigh appreciably less than competitive nuts. In many instances, they have only ⅓ the weight. In actual use they save up to 65 pounds per airplane.

LIGHTNESS Keeps 'Em Firing Longer

Thanks to the lightness of Boots all-metal, self-locking nuts, which protect a Flying Fortress, it can carry 200 extra rounds of .50 caliber bullets. This extra ammunition weighs about sixty pounds—the weight saved by using Boots Nuts, in place of other nuts, on a heavy bomber.

Boots Nuts are not only lighter than other nuts—they're tougher, too. No amount of plane vibration can loosen them. They withstand the corrosive action of chemicals, salt water and weather. And they can be re-used again and again. They literally "outlast the plane."

Boots all-metal, self-locking nuts, used on every type of U.S. aircraft, meet the specifications of all government agencies.

"They Fly With Their Boots On—*Lighter*"

BOOTS

Self-Locking Nuts For Application In All Industries

BOOTS AIRCRAFT NUT CORPORATION ★ GENERAL OFFICES, NEW CANAAN, CONNECTICUT

Pilots' Advisory Service Begun; To Be Nationwide By End of Year

The first steps in a new system of flight control for all point-to-point flights of military aircraft in the United States were taken recently with the inauguration of the Army Air Forces Pilots' Advisory Service in two areas where especially heavy air traffic prevails, the War Dept. has announced.

Areas where the service went into effect are in the northeast, including the New England states and part of New York, and the northwest, comprising the states of Washington and Oregon, together with western Idaho and the northernmost portion of California.

In Force by '43

This improved safeguard for Army fliers, provided by the AAF Flight Control Domestic Wing, under the Command of Col. Edgar A. Sirmyer, Jr., will be in force throughout the country by the end of 1943.

The Pilots' Advisory Service enables a close contact to be maintained with AAF pilots on cross-country flights and provides them, while in the air, with the best possible information about all conditions affecting their missions. It thereby should help to reduce the number of accidents, as well as to speed the locating and rescue of forcefully grounded ships, War Dept. said. It is being operated by a specially trained staff of AAF officers, located in existing Civil Aeronautics Administration traffic control centers and supplementing the work of CAA personnel by extending an advisory service to AAF pilots flying off the regular airways. These officers will at all times have full information on both weather and traffic throughout the sections in which they are stationed. In case of sudden changes in weather conditions, revised orders, the approach of large formation flights, or other emergency, they will be able to reach by radio the various pilots aloft in the locality affected and immediately give them all necessary advice.

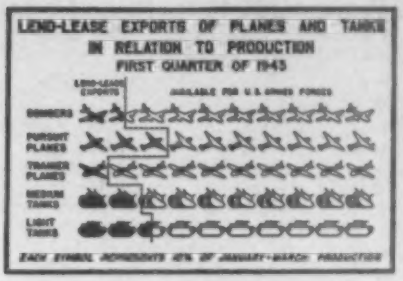
Pilots Instructed

Complete cooperation by Army pilots will be required to enable the new safety measure to be fully effective. They are instructed to:

1. Plan their flights carefully in advance, whether on or off their airways, indicating the communication contacts they will make en route.
2. Accurately report their exact positions at each radio fix.
3. Maintain an alert listening watch throughout each flight.

Army Air Forces advisory officers, equipped with flight plans of all cross-country missions within their areas, will plot each flight on a magnetic map, moving the flight along according to its speed and the course indicated, and checking it repeatedly against position reports relayed from communications stations which have been in radio contact with the pilot.

Thus, the fliers can be informed in advance of every unforeseen hazard in their paths, or of a change in orders. If an accident occurs despite these increased precautions, the approximate position of the airplane involved will be known and help can be sent with the utmost speed and accuracy.



Lend-Lease Aircraft Total $887 Millions

Shipments of planes to Russia now exceed those to the United Kingdom, it was revealed in President Roosevelt's recent report to Congress on status of Lend-Lease operations as of Mar. 31, 1943.

Specifically, these munitions were shipped up to that time, not including the value of flight-delivered planes: (In millions of dollars.)

Article	United Kingdom	U.S.S.R.	Africa & Middle East	China, India, Australia, N. Z.	Other	Total
Ordnance	148	60	93	78	36	415
Ammunition	265	220	186	145	42	858
Aircraft	199	327	135	139	87	887
Tanks	104	180	133	117	19	553
Motor Vehicles	94	229	148	113	23	607
Watercraft	71	25	15	7	14	132
Total	881	1,041	710	599	221	3,452
These industrial items were exported:						
Machinery	191	122	61	50	6	430
Metals	334	235	94	104	12	779
Petroleum Products	261	11	35	43	5	355
Other	185	97	56	42	27	407
Total	971	465	246	239	50	1,971

In the $6,423,000,000 1944 Lend-Lease appropriation recently passed by the House, no funds were included for aircraft items since appropriations for Lend-Lease aircraft go directly to the military services.

Small Businesses Saved By Air Force Contracts

Files of the Army Air Forces Procurement Division indicate that AAF contracts have been the means of preventing the closing of numbers of small plants employing fewer than 100 persons, the War Department has announced.

The greatest proportion of the Army Air Forces contracts is for airframes, airplane engines, propellers, and completed airplanes, which are not products that can be purchased from small plants. However, many of the small parts for airplanes are manufactured by small firms. These are generally produced under subcontracts with the prime contractor—not directly with the Government.

Under the Small Business Act, passed by Congress in 1942, Government agencies have been encouraged to place business with small manufacturers even though it entails slightly greater cost. In cooperation with the Smaller War Plants Corp. in Washington, the Air Forces has been distributing its contracts to such plants whenever possible.

To one of the smaller rubber companies in Akron, O., an Air Forces order for life rafts "came in the nick of time to prevent the complete shut-down of our business, established in 1907."

In another Ohio town, an upholstering company whose employment had been cut from 150 to 35 because of the war is now producing an order of 75,000 mallets for the Army Air Forces.

A furnace company, which had just completed a new plant about the time of Pearl Harbor in an Illinois town of 1,300 where the only other industry was a flour mill, began to find the prospects for continuation of its business growing fainter. Now Army Air Forces contracts have assured continued operation of this vitally needed plant.

A Wisconsin manufacturer of Venetian blinds, beehives and golf ball washers is now making propeller blades.

A manufacturer of phonographs in a small town in Minnesota received substantial contracts to make washers.

New Plastics Plant Opens In Tennessee for War Job

Only eight months after Defense Plant Corp. awarded the building and operating contract, a new plastics plant has opened in Tennessee which "will quadruple the production of Plexiglas sheets," Rohm and Haas Company, Philadelphia, Pa., has announced.

Navy Reveals Huge Expansion of NATS

Current expansion of the Naval Air Transport Service will triple the facilities for continental and inter-continental transportation of war cargo and personnel over most of the world, the Navy has disclosed. The present expansion schedule increases the transport service from three to 10 squadrons. Seven already have been commissioned, the announcement says.

"Several hundred air cargo carriers, both land and seaplanes, are to be made available for the extended service," the Navy reported. "The new planes will be principally Martin 'Mariners,' converted to transports under the designation PBM-3R, and Consolidated 'Coronados,' under the designation PB2Y-3R. Other planes extensively used in the service will be Douglas DC-4 'Skymaster' (R5D); Douglas DC-3 'Skytrain' (R4D1) and 'Skytrooper' (R4D2); Lockheed 'Lodestars' (R50) and others."

The expanded service will operate in three main divisions: Atlantic, West Coast, and Pacific, the announcement explained. The Atlantic command will consist of squadrons serving the Atlantic coasts of North, Central, and South America, extending across the ocean to Europe and South Africa. Squadrons of the West Coast command will operate schedules for the transcontinental service and also serve Western Canada and Alaska. The Pacific command will operate schedules in the Pacific ocean area, primarily to the Pacific Southwest.

Headquarters of the commands will be at Patuxent River, Md.; Alameda, Cal.; and Pearl Harbor, respectively. Three "elastic" squadrons, to operate on the fringe of battle zones, will be outfitted under each main division.

"Congress has appropriated $40,000,000 for expansion of facilities to integrate the Naval Air Transport Service with Naval establishments and provide a war organization which can be employed in commercial aviation when the war is over," the announcement said. "These facilities are rapidly being put into use with the purpose of developing a flexible, streamlined organization of decentralized squadrons which can pick up and operate across the face of the globe on a moment's notice under any conditions."

Navy Men Can Identify Planes in 1/75 Second

Enemy airplanes can now be recognized by Navy men in a split second out of the corner of the eye as a result of adoption of a fundamentally different Official U. S. Navy Recognition System.

The new method, which is essentially a system of muscular eye training to teach men to know a total object after only a flash view, is now being taught to all Navy men aboard combat ships, at shore stations and in training schools which prepare men for sea duty. Officer instructors in the new skill are being trained at Ohio State University, Columbus, Ohio.

The training school for instructors has been open since September, 1942 when it was established by the Bureau of Aeronautics for the men in Naval aviation. Immediate international interest was drawn to it as men from the Army and the armies and navies of the United Nations came to study the new method, according to an official Navy Department statement.

In a short time the school was put under the general cognizance of the Bureau of Naval Personnel and the course was expanded to include the recognition of ship and ground equipment as well as planes. Ultimately the Navy hopes to have all its personnel trained in the new method of recognition.

Basic change is that men are trained to recognize the enemy from the total image which is considered both faster and more accurate than the older WEFT system, primarily because it is based on an instinctive muscular reaction rather than a conscious mental process. The basic equipment used in training is a collection of 2000 slides which present 168 different objects from every angle from which they might enter the field of vision. These slides are shown from a projector with a flash meter which regulates the length of time the image is thrown on the screen. The introductory speed for airplane shots is one fifth of a second and for ships, three seconds. At the end of the full 120 hour course, planes are recognized at flying angles in one seventy fifth of a second and ships on glaring water can be identified after a one second glance.

Daily sessions with these slides so train the student's eyes that the image and its combat significance are literally hammered into the mind. At the same time, other slides are used to enlarge the normal range of vision so that objects to the other side of the observer can be seen and recognized as quickly as those straight ahead.

The course also includes lectures on each type plane, ship or armored equipment as it is introduced to them. They are also shown movies, slides and charts and are given models to study so that recognition of an object brings automatic understanding of its combat characteristics.

New Air Marshal Given RAF Reins in Washington

Air Marshal Sir William Lawrie Welsh has arrived in Washington from London to assume charge of the Royal Air Force in this country. He was formerly commander of British air forces in North Africa.

Welsh is an expert on flying boats, seaplanes, and torpedo-carrying aircraft, according to the British Information Service.

"Few officers in the RAF know more about air and sea warfare than Air Marshal Welsh," says the Service. "He served with the Rhine Army and in Egypt, Palestine, the Mediterranean, and Iraq before his recent service in Africa. He took part in the Cape-to-Cairo flight after the last war, and also commanded the expedition which surveyed the desert air route from Transjordan to Iraq."

He was director of organization in the air ministry from 1934 to 1937, Air Member for Supply and Organization on the Air Council from 1937 to 1940, and Air Officer Commanding the Technical Training Command from 1940 to 1941. In July, 1941, he became Air Officer Commander in Chief of the Flying Training Command, from which he was withdrawn for special duties, including preparations for the operations in North Africa.

Boeing's School Honored

In a ceremony witnessed by Washington's Governor A. B. Langlie and other notables, Boeing Aircraft's Flying Fortress School in Seattle was recently awarded the efficiency banner of U. S. AAF Technical Training Command, for the district comprising the 15 western states. Brig. Gen. Early E. Duncan presented the banner to Boeing's president and general manager, P. G. Johnson.

Cessna Starts New Base

Cessna Aircraft Co. has established an overhaul base at the Hutchinson, Kan., municipal airport, to which training planes built by Cessna may be flown for overhaul from all parts of the country. Servicing is under factory supervision.

HISTORICAL SECTION: In each of the Army's commands, Army Ground Forces, Army Air Forces and Services of Supply, an historical section is functioning, according to War Dept. Divisions under these commands each have an historical officer. Purpose is to obtain material, with emphasis on administration, on what the Army does and how it does it. Both meritorious and faulty performances are recorded, announcement explained. Histories begin about the time of the start of the war in Europe, and are directed by competent historians.

'Taxi Trainer': This novel two-place trainer is being used to aid in the instruction of Army ground crew men and aircraft mechanics at the AAF Technical Command School, Camp Curtissair, Buffalo, N. Y. Made from salvaged parts, it has numerous features for safe training in ground-handling of a plane.

Almost two years ago, these and other C-45A Beechcrafts joined the C-45s then used by ranking Army officers on National Defense missions

Beechcrafts at work

No. 5
OF A SERIES

The Beechcraft C-45 personnel transports were among the first twin-engine Beechcrafts to enter the service of the Army Air Forces, early in 1940. Equipped and appointed much like the commercial airliners and executive transports then built by Beech, and almost identical with them in design, their purpose was to provide swift, safe transportation for command personnel between centers of defense activity. A later version, the C-45A, carried camouflage warpaint and special equipment which still further broadened its utility.

The C-45 and C-45A Beechcrafts are now making themselves generally useful, both in the United States and in foreign theatres of operation. The high cruising speed, low landing speed, high inherent stability, sturdiness, and low fuel consumption demonstrated by their civilian prototypes are valuable qualities in the types of service now rendered by these Beechcrafts. They do their full share as units of the world's best-equipped air forces.

Beech Aircraft

CORPORATION

BEECHCRAFTS ARE DOING THEIR PART

WICHITA, KANSAS, U. S. A.

Air Photos Used to Study Airport Soils

Use of aerial photographs in the selection of airport sites is being studied at Purdue University under the sponsorship of the Civil Aeronautics Administration.

"Aerial photography is not new—even in plotting airports," said Fred Grieme, head of CAA's airport development section, who discussed the war-time aspects of the subject for *American Aviation*. "The Department of Commerce picked the site for the Omaha Municipal Airport by air 10 years ago, and judging from reports just received the job was well done. The airport has just survived a ravaging flood.

"But there is need today for emphasis on the use of aerial photographs in *war-time* soils engineering. Airports in new locations are important to military transportation. Soils engineers can render vital service by recommending locations that will give the best service."

Through air photos, those taking the Purdue course are learning to establish physical features and topography of a given area by "implications" that appear in the picture. They are learning to read the signs that "imply" soil conditions.

Dark areas, for example, are slight saucer-like depressions. Too often airports are placed in locations such as this because of favorable topography and without full appreciation of drainage conditions.

Steep valley sides indicate stable soils or rocks. Flat slopes of valleys showing light, lace-like borders indicate an erosive soil, probably a silt. Hills of certain shape imply a windblown origin that in turn implies a very definite limit on the maximum size of soil particles.

At Purdue, the fact is stressed that there is not a present or future field of action in the war where the soil conditions will be comparable to those in the United States, Grieme pointed out. To illustrate, he read the following from a recent paper written by Donald J. Belcher, research engineer assigned to the study:

"Consider the mixed emotions of a soils engineer charged with determining runway thickness for an airport to be placed on the Matanzas red clay soil of the West Indies and Central America when he learns that the clay content exceeds 90 per cent. Since soils of the United States seldom contain more than 60 per cent, the thought of a soil containing 90 per cent of clay would cause most engineers to suggest a relocation. Actually, this soil is an ideal subgrade material for either highways or runways. It occurs on flat terrain and readily absorbs large quantities of rainfall in a climate that averages 70 inches per year."

The study aims toward developing soils engineers for the postwar world as well as for war service, as evidenced by another of Belcher's quotations.

"We can be sure that in the period following the war there will be a need for engineers in the various countries of the world," he writes. "This will be a time of construction in which an integrated system of transportation and communication will provide a framework upon which the world may build a more satisfactory society.

"In the building of this transportation system, the soils engineer can play an important part. If the leaders of nations have initiated plans for solving postwar problems, then it behooves the engineers, upon whom much of the work will fall, to make ready for the problems that will confront them."

Human Cargo, Too: Army personnel shown inside a C-47 transport plane of the Air Transport Command enroute from Brazil to the United States. The plane also is carrying a cargo of strategic Brazilian materials.

12 Flying Training Wings Formed by War Dept.

Creation of 12 Flying Training Wings to be concerned exclusively with actual training activities was announced by the War Dept., recently. These wings will sub-divide further the constantly mounting supervisory duties of officials in charge of the Army's program for training pilots, bombardiers, navigators and gunners.

Four wings have been activated within each of the three training centers which make up the Army Air Forces Flying Training Command, under the direction of Major General Barton K. Yount. Installation of these Wings is the latest indication of the expanding scope of FTC, which was formed 19 months ago to incorporate the three training centers at that time operating with administrative independence.

Frequent Inspections

Each wing will be commanded by a Brigadier General, who will receive and issue only those letters and directives related to the training program. Serving as direct field contacts for the Training Centers, Wing Commanders will conduct frequent inspections of the AAF schools under their jurisdiction. In addition to making recommendations to expedite the program, they will assure compliance by each station with directives, policies and instructions issued by Training Center Headquarters. Close liaison will be maintained by the Wing Commander with the other three heads in his center to achieve conformity in training techniques.

Flying Training Wings, with their headquarters and Commanders, have been established as follows: Southeast Training Center: 27th Flying Training Wing, Cochran Field, Macon, Georgia, Brigadier General Frederick Von H. Kimble; 28th Flying Training Wing, George Field, Lawrenceville, Illinois, Brigadier General Robert E. Nowland; 29th Flying Training Wing, Moody Field, Valdosta, Georgia, Brigadier General John G. Williams; and the 30th Flying Training Wing, Jackson Army Air Base, Jackson, Mississippi, Brigadier General John F. McBlain.

Other Wings

Gulf Coast Training Center: 31st Flying Training Wing, Enid Army Flying School, Enid, Oklahoma, Brigadier General Thomas Blackburn; 32nd Flying Training Wing, Perrin Field, Sherman, Texas, Brigadier General Aubrey Hornsby; 33rd Flying Training Wing, Blackland Army Flying Schools, Waco, Texas, Brigadier General L. S. Smith; and the 34th Flying Training Wing, San Angelo Army Air Field, San Angelo, Texas, Brigadier General Isaiah Davies.

West Coast Training Center: 35th Flying Training Wing, Merced Army Flying School, Brigadier General L. R. Hewitt; 36th Flying Training Wing, Victorville Army Flying School, Victorville, California, Brigadier General Martinus Stenseth; 37th Flying Training Wing, Luke Field, Phoenix, Arizona, Brigadier General Alvan C. Kincaid, and 38th Flying Training Wing, Roswell Army Flying School, Roswell, New Mexico, Brigadier General Martin F. Scanlon.

BUY WAR BONDS AND STAMPS

Battleship of the Skies

You're looking through the waist gunner's window of a Boeing Flying Fortress*. . . at another Fortress on its test run near Seattle. Peaceful enough here, it nonetheless represents 32 tons of the most deadly fighting mechanism ever devised.

The Boeing Fortress now has a maximum bomb capacity of more than 10 *tons* . . . equaling or exceeding that of any other bomber, Allied or Axis, now in service.

Its stability and general flight characteristics make it a superior "platform" for high-level bombing of the most destructive accuracy.

The Flying Fortress has great defensive firepower and is credited with a remarkably high average of successfully completed combat missions.

All this, of course, is not just happenstance. It stems from the determination of the Boeing company nine years ago to build an airplane unlike any then in existence, an airplane that would be truly a "Battleship of the Skies."

To carry through such a project meant years of costly research. It meant continuing advancement from one stage to another, including long experimentation at stratosphere altitudes where few men had ever been. It meant utilizing the skills of many hundreds of engineers representing more than 25 different engineering fields.

It meant financial courage of a high order, for the original Flying Fortress was a wholly private venture financed throughout by Boeing.

Today Boeing's foresight and faith are more than justified by the outstanding record of Flying Fortresses in the war.

Tomorrow you may look to Boeing for peacetime products of equal leadership. The phrase "Built by Boeing" means they're bound to be good.

DESIGNERS OF THE FLYING FORTRESS • THE STRATOLINER • PAN AMERICAN CLIPPERS **BOEING**

*THE TERMS "FLYING FORTRESS" AND "STRATOLINER" ARE REGISTERED BOEING TRADE-MARKS

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Letters

New York, N. Y.

To the Editor:

On Page 32 of your valued *American Aviation Directory*, spring-summer 1943 edition, at the tag end of Pan American Airways' information is a line reading: "Total employes, 21,846."

On Page 8 of your equally valued publication *American Aviation*, June 1, 1943 issue, in the editorial "Expansion" in the phrase indicating that someone said . . . "Pan American Airways now has 88,000 persons employed . . ."

Several of your equally valued constituents are practically ga-ga over the fact that within the period of a day or two, representing the date of Mr. Juan T. Trippe's speech, and the date we received your *Directory*, that PAA has increased its paid staff some four-fold.

Now, what the hell?

Puzzled.

(Editor's Note: On being questioned about the 88,000 figure, W. I. Van Dusen, PAA Director of Public Relations, said the figure "represents the total number of persons employed in the Pan American organization including both system transport operations and our war effort operations." In other words, it includes Panagra, China National Airways Corp., Cia Mexicana, Cubana, other national subsidiaries, and the very extensive number of employes building airports under contract with the Army. Mr. Van Dusen did not break down the total by classification.)

Tulsa, Okla.,
June 4, 1943.

To the Editor:

I have been reading *American Aviation* with a great deal of interest almost since its first publication date, and I think that you are to be commended upon the forthright, courageous stand you have always taken on public issues. Certainly no one can question your attitude or your position.

The most accurate, most complete and quickest information I get concerning aviation comes from your publication. Keep up the good work.

RUSSELL S. RHODES,
General Manager,
Tulsa Chamber of Commerce.

●

Kansas City, Mo.

To the Editor:

By the looks of the calendar it's about time to congratulate you and your staff on your sixth anniversary of *American Aviation*. It goes without saying that we are all very grateful for all the help you have given us and the grand job you have done in keeping us advised on what is going on in all allied phases.

I hope we are all around when you celebrate your golden anniversary. After all, people can have a hell of a lot of fun in wheel chairs.

Leo Baron,
Public Information Dept.
TWA, Inc.

Obituaries

Max Constant

Max Constant, French born internationally known testing pilot, Beverly Hills, Cal., was killed recently while flying on an experimental flight. A Northrop Aircraft, Inc., spokesman said wreckage of Constant's plane was found near a test field on the Mojave desert. In 1939, Constant won the New York-Miami air derby flying a plane owned by Jacqueline Cochrane.

●

John H. Coxhead

John H. Coxhead, 80, formerly designing architect for the U. S. AAF, died May 25 in Brewster, N. Y. He was a fellow and the oldest member of the American Institute of Architects, and on his retirement some years ago was awarded a gold medal for his architectural achievements.

●

Russell E. Walling

Russell E. Walling, 40, director of the Watertown, N. Y., Municipal Airport and president of the Walling Aviation Co., died recently after an illness of two months. He had been a flier for 19 years with a record of having transported more than 100,000 passengers without a serious accident. He was credited with more than 7,000 flying hours. Walling worked for the Curtiss-Wright Corp. for 10 years as test pilot, exhibition flier, ferry pilot, and instructor. He also had been associated with the Philco Radio & Television Corp. The Walling Aviation Co. was formed for the purpose of conducting a flying school.

●

Lloyd Curnow

Funeral services for Lloyd Curnow, 41, manufacturer of airplane parts, were held recently in Los Angeles. He had resided there 23 years. He leaves his widow, Wilhelmina, one son, and his parents, Mr. and Mrs. William E. Curnow.

What Others Say

AL WILLIAMS—"Policing of the postwar world is a job made to order for airpower. Control of the world's airlanes is the only way to do the job effectively and economically."

MAJ. WILLIAM M. SHEEHAN (Army Air Forces, air cargo expert)—"Termination of the war may find aircraft manufacturers menaced by a Frankenstein of their own creation if for want of readily available commercial planes the postwar market becomes swamped with convertible military models."

Job Dictionary: More than 300 jobs are classified in the "Job Dictionary for the Aircraft Parts Manufacturing Industry," published June 1 by the Aircraft Parts Manufacturers Association in Los Angeles, Cal. Shown in picture are, left to right, John R. Bair, Thompson Products, Inc.; A. J. Brechtel, Plomb Tool Co.; and Dr. Vernon D. Keeler, in charge of the technical work of the compilation, at conference when dictionary was planned.

Books

AMERICA'S FIGHTING PLANES IN ACTION. By Reed Kinert. The MacMillan Co., New York. 144 pages, original illustrations. $2.50.

No one could better describe the various U. S. planes now in action than someone who teaches the art of flying them. For that reason Reed Kinert, a flight instructor at Ryan Field, Cal., has done an excellent job. With drawing as his hobby he has tried in this book to express the part the air services are playing in the war both briefly and effectively, leaving his illustrations to produce a definite picture. The book will have its appeal for any age group.

—E. C.

●

QUEENS DIE PROUDLY. By W. L. White. Harcourt, Brace and Co., New York. $2.50. 273 pp.

One doesn't sit down immediately and write a review of W. L. White's book "Queens Die Proudly." So much of the vividness of what really happened in the Pacific after Dec. 7, 1941 has been soaking into your mind that you have to stop and think about it seriously. Then about all you want to do is tell everyone about it as quickly as possible. But your words sound incompetent, for it is only W. L. White who can tell it in the way it should be told.

From the first chapter on you want to eliminate red tape for the duration and really get the planes in the air with good men at the controls, and keep them there. You see the reenactment of the Pearl Harbor attack—Colin Kelly's last flight—the fall of Java despite the brave defense of the Dutch—the retreat to Australia—followed at last by the arrival of a good-sized American fleet just as General Brett and the "Swoose" are on the return flight to America. There are the disgusting Japanese methods of attack—pilots dressed in native costume, so if they are forced to land they can mingle with an island's residents unnoticed—and their painting five white star points around the rising sun to fool American pilots until it is too late. Fortunately since this last trick was discovered the red central disk has been removed from the Army Air Force emblem.

Throughout the book the Flying Fortresses prove their worth and as Mr. White wrote, "They die like the men who fly them and fight in them would want them to die! They die like the great Sky Queens they are. And Queens die proudly."

—E. C.

Jap-hunting without a gun!

THE TRUE STORY OF HOW A CRIPPLED LOCKHEED LIGHTNING OUTFLEW 13 JAP ZEROS AND GOT HOME, SAFE!

1. With cameras instead of guns in its nose, a P-38 Lightning was photographing the Jap

base of Rabaul. Suddenly ten Zeros dove out of the sun, and before the American pilot knew what was happening, tracer bullets were ripping into his plane and then one engine conked out on him.

2. Somehow, with only one engine left, he had to get away from those ten Zeros. He pulled back the stick, jammed down the throttle, pointed her nose at the sky. By the time the Japs came to, he was five miles up and on his way home.

3. 400 miles later, three more Japs started a deadly game of hide and seek. Still going on one engine, he streaked straight out over the ocean and "Just ran 'em out of gas!" Yes, he

ran them out of gas . . . but he also ran clear back to New Guinea with photographs that were vital to our Coral Sea victory.

4. The Lightning is used as a camera plane because it can fly faster, higher, and farther than any enemy fighter—can take punishment and still deliver the goods. These qualities result from many months of designing and testing. From hundreds of wind tunnel experiments we developed the non-stall wing design that makes it impossible for a P-38 to go into a tail-spin even on one engine. It's this sort of careful designing and testing that give every Lockheed and Vega plane *extra* strength and *extra* dependability.

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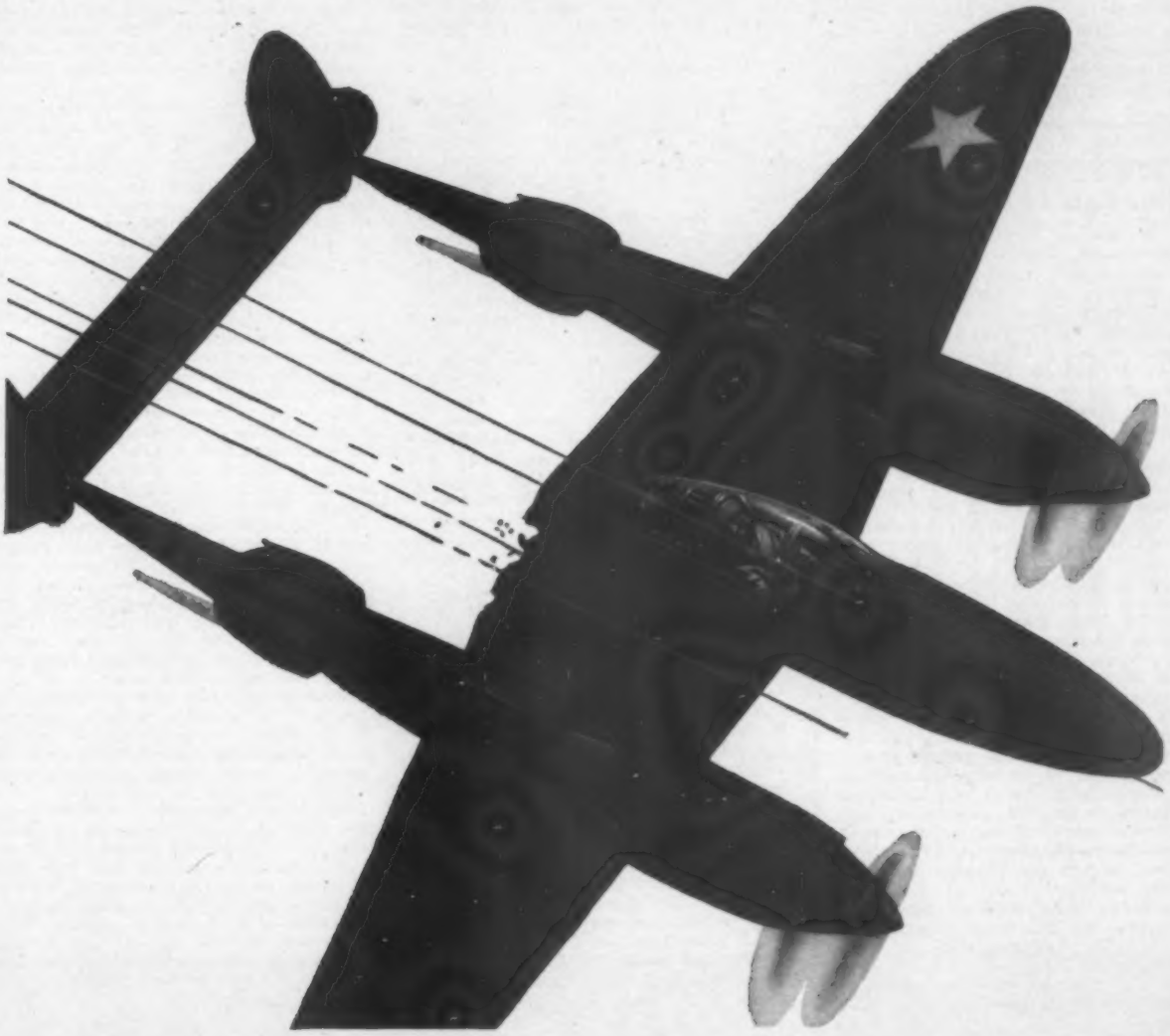
LOOK TO *Lockheed* FOR LEADERSHIP



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Annual Trophy Worth $10,000 Is Offered for Air Youth Education

A $10,000 trophy, to be awarded annually "for achievement in the field of Air Youth Education," has been donated by Frank G. Brewer, operator of a Birmingham, Ala., trucking concern through the National Aeronautic Association. The NAA hails the trophy as a "Jr. Collier" award.

The Brewer fund covers three distinct trophies and annual awards. In addition to a national award, it sets up an Alabama state-wide and Birmingham local competition. The fund is in honor of Brewer's two sons, Frank G., Jr., a bombardier, and Robert Brewer, a paratrooper, both now serving overseas. The national award is established perpetually through an endowment fund, while the Alabama and Birmingham awards are set up for a minimum of five years and as long thereafter as the National Aeronautic Association and the local group wish to continue the presentations.

"Because of my two boys and the other million and a half like them who have been put into the air by the war, and because aviation has climbed to America's No. 1 industry and will offer the greatest opportunities to youth in the postwar days, I wanted very much to make some kind of contribution to Youth Aviation Education," said Brewer at a Birmingham Aero Club luncheon in his honor.

Donates Trophy: Frank G. Brewer, a Birmingham, Ala., truck operator, has donated the $10,000 Brewer Trophy seen in the picture. Shown at luncheon of Birmingham Aero Club are (left to right): Mrs. Brewer, the donor, W. P. Redding, executive vice president of the N.A.A., and P. Y. Whitman, president of the Aero club.

In a letter to the donor, President Gill Robb Wilson of the NAA said:

"This marks another milestone in the history of aviation. The Brewer Trophy is the first award established on a national basis in this field of aeronautic progress. The National Aeronautic Association will do everything in its power to publicize this award because it is around such focal points that great interest is developed.

"Our Collier Trophy, which has been awarded annually for many years, has done tremendous good in the field of scientific development. Any man who wins it has a permanent place in the history of aviation science. We hope to be able to make that true in the field of aviation education, and if it can be done, the Brewer Trophy will be a foundation stone of great national significance."

Nun Learning to Fly so She Can Teach Students

A Roman Catholic nun from Manitowoc, Wis., arrived in Washington recently to begin a 10 week course in aeronautics at Catholic University. She is Sister Mary Aquinas of the Franciscan Order, who learned to fly last summer after she decided she could teach aerodynamics to her high school students more intelligently if she had actual flying experience.

"I became interested in aerodynamics about five years ago when I was studying for a master's degree in physics at Notre Dame University," she said. "I believed that if the descriptive knowledge most high school boys have of planes was supplemented by theoretical knowledge, they could become good pilots while still in high school.

"When I returned to my classes at Manitowoc, I started a club for boys and girls to test this theory. My pupils knew I didn't know much about the subject, but we went into it in a rather democratic way of learning together. It wasn't long before the students began to demand the subject, and it was added to the regular curriculum. My learning to fly was just to put me a jump ahead of my students."

Sister Mary Aquinas never has soloed, but has flown many hours. She flies "anytime they let me," she said.

East Boston Considers Big Airport Bond Issue

A $4,500,000 state bond issue for the improvement and expansion of Commonwealth Airport in East Boston was recommended recently to the Massachusetts Legislature by its committee on military affairs and public safety.

Gov. Leverett Saltonstall's budget message had advocated a $3,000,000 bond issue for the airport, which the state took over from the city of Boston two years ago for approximately $1,000,000.

A further recommendation of the legislative committee was that Boston transfer to the state "without monetary consideration," an East Boston park area for addition to the airport.

NRPB Lists Plans For $345,000,000 Postwar Airports

With postwar planning for air transportation labeled as a "major activity," the National Resources Planning Board in a recent report to the President made public a "shelf" of approximately $345,000,000 proposed airport constructions and improvements as part of its backlog of suggested employment after the war.

Of this shelf, the major portion—over $310,000,000—is for the completion (after fiscal year 1944) of the nationwide airport and landing area development program prepared as a result of the 1939 airport survey made by Civil Aeronautics Administration.

Although some 3,900 airports were recommended in this survey, over 550 were already built or building by June 30, 1942, and an estimated 228 airports will have been started by June 30, 1944, the board said.

Thus, approximately 3,100 airports remain from the original program, although it is possible that this number may be increased by the addition of airports whose construction may be deferred.

None of the airports in this future program is now authorized for construction, and no specific sites have been selected, nor have any of the airports been planned in detail.

"Although site selection requires careful over-all planning for the region involved," said the NRPB, "the actual detailed planning of these projects is not too difficult or complicated an operation, because no structures are involved in the work covered in this program. The volume of over $310,000,000 includes only the draining, grading, paving, and other work necessary to construct the actual fields, and does not include hangars, administration buildings, or any other structures usually associated with an airport. An additional large amount of construction is therefore associated with this program, but because such work will be the responsibility of local interests, it is not possible to estimate the total volume of such induced construction.

"The smaller portion of this group covers the construction necessary to service the Federal airways throughout the country. This $33,000,000 program includes erection of ultra-high-frequency radio ranges, equipment of airway traffic control systems, enlargement, relocation, and improvement of existing landing fields, and provision of other airway facilities. These improvements are all authorized and in many cases plans have already been prepared for their installation.

"Postwar planning for air transportation will be a major activity, not only for the Federal agencies involved but also for local governments which must fit the air-transportation plans into their community, state and regional plans.

"The Civil Aeronautics Administration has directed its air transportation planning more toward the larger field of national development, and has not itself prepared, except for its special wartime programs, detailed airport plans for communities or metropolitan regions. This more detailed type of local airport planning must be done by urban and state agencies within the broad framework of the national plan."

STALWART STRUCTURES
SENSITIVE CONTROLS
are the
KEYSTONE OF AIR POWER

Between the Aleutians and New Zealand is a range of fighting conditions that is a constant challenge to the best engineering and fabricating talent in America. Pitching flight decks, makeshift jungle fields, arctic cold and tropical heat, sand, tempestuous rain, ice and snow—these are the conditions of flying . . . *day and night!* American boys have the stamina to fight everywhere. GENERAL AVIATION is helping to supply the flying equipment that fights everywhere!

Aircraft Structural and Control Parts

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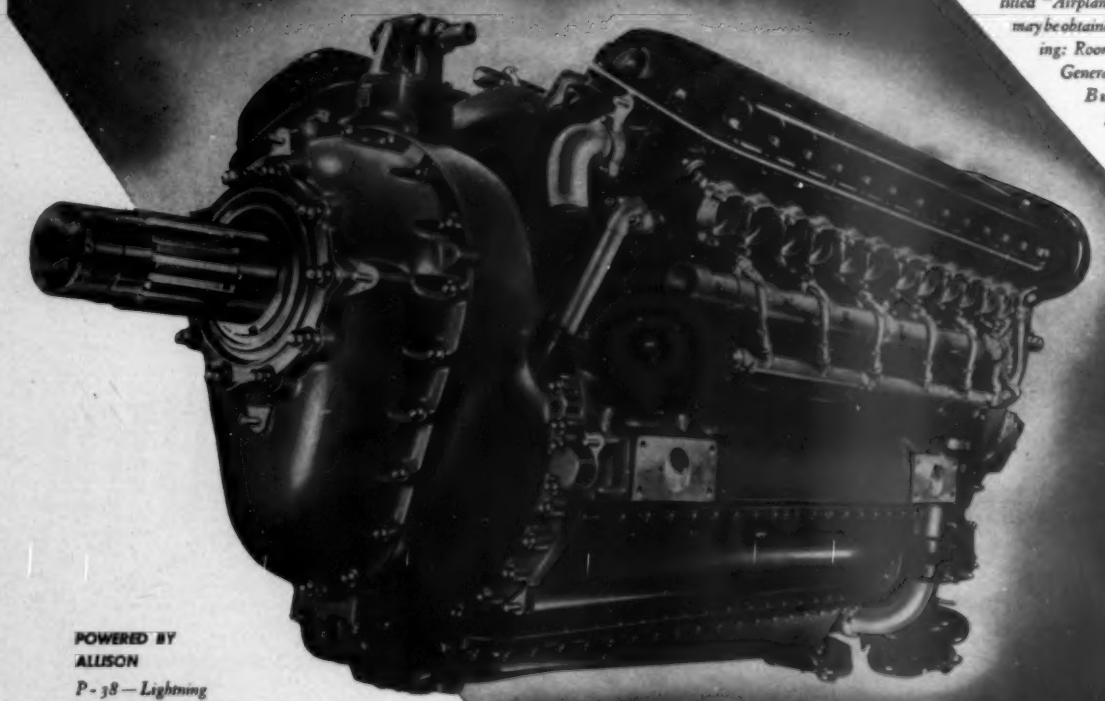

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House Group Provides 23½ Billion for AAF

Aviation Will Take One-Third of All Army Appropriations

By KATHERINE E. JOHNSEN

AN AIR FORCES allocation of $23,655,481,000, providing for the procurement of 99,740 additional planes at an estimated cost of $20,203,843,736, was recommended during the fortnight by the House Appropriations Committee in reporting out the 1944 War Dept. Appropriation bill.

Lieut. Gen. Joseph T. McNarney, Deputy Chief of Staff, stated that these funds "will provide a fighting Air Force of 273 groups . . . approximately 36,000 bombers, 38,000 fighters, 12,000 transport planes, and 9,000 training planes, with sufficient additional engines and parts, . . . for maintenance of over 900 airfields, with runways in excess of 2,750,000 square yards . . ." Maj. Gen. O. P. Echols pointed out that the Air Corps training program calls for "an output of approximately 302,000 officers and enlisted technicians, 80,000 pilots, 12,000 bombardiers, and 18,000 navigators . . ."

Snyder

If the aerial offensive against the Axis is successful, "undoubtedly much more money will be required than the $23,000,000,000 set aside for the Air Corps", Rep. J. Buell Snyder (D., Pa.), chairman of the subcommittee which considered the bill, said, although he estimated that the present measure will be the peak Army appropriation of the war.

"But if we can bomb them into submission, there will be only one of our boys to lose his life as compared to 19 if an over-all invasion is necessary," he observed, remarking that "from a shoestring start three years ago to the most potent air force in the world is an achievement words are inadequate to describe."

The delay in completing the 185,000 airplane program, laid down by the President for the 1942 and 1943 calendar years and now slated for completion by June 30, 1944, has resulted "from a shift from smaller to larger types," the House Committee's report stated. "There has been no delay upon the basis of weight of airplanes produced, contrasted with the weight of planes as originally projected." The aircraft production rate achieved by July, 1944, will be "well over the 1943 calendar year objective of 125,000 airplanes," the Committee said, and on the advice of our military and naval leadership will continue at the accelerated speed after that date.

Revealing facts on the war outlook and the Army's future aviation plans were presented to the House Committee in substantiation of the appropriations.

Greater Axis Numbers Met by Allies' Air Superiority. "Considering the overall number of combat troops available to the Axis forces, it might appear that the number of divisions we are raising is relatively small," McNarney told Congressmen, and explained:

"However, the actual number of divisions required is dependent upon other factors. One is that the nature of land fighting is to a large extent dependent upon the situation in the air. We have devoted a very large portion of our resources to building an air force. In conjunction with our allies, we will have superiority in the air. With such superiority the actual efficiency of the divisons on the ground cannot be measured one for one."

Third of Army Expenditures by Air Corps. Thirty-three cents out of every Army dollar will be spent by the Air Corps during the coming year, Lieut. Gen. Brehon Somervell said. The remainder of each dollar wll be allocated: Ordnance, 21 cents; Finance, 17.1 cents; Supplies and Transportation, 10.6 cents; Signal Corps, 7.8 cents; Engineers Corps, 5.7 cents; Expediting Production (tooling up new facilities, etc.) 1.8 cents; Chemical Warfare, 1.5 cents; Medical Corps, 0.8 cents; miscellaneous, 0.7 cents.

Aircraft Program Planned to July, 1945. Planes covered by the present appropriation take care of the Army's aircraft program through June, 1945, Echols said. Funds for the aircraft program are being requested so far in advance to "assure uninterrupted production of all types over this period . . . contractors must have ample time to plan production of the new types and changes in current types as well as to select subcontractors and aid them in tooling up and training their personnel," he explained.

1943 Output Will Exceed President's Goal in Airframe Weight. "During the calendar year 1943, we expect to produce 911,000,000 lbs. of air frames," Echols said. "When the President's directive of Jan. 3, 1942, which called for the production of 125,000 airplanes during 1943 was issued, the average airframe weight of the military airplane being produced was 4,520 lbs." (This means that under the old weight standard for aircraft, we would produce considerably over 200,000 planes this year.)

At the time of the President's order, "emphasis was being placed on the need for defensive fighters and light and dive bombers, which incidentally, is the situation now in Germany," Echols explained, adding:

"The emphasis has shifted now to the production of four engine heavy bombers, long range fighters and large cargo airplanes, rather than a very large number of smaller airplanes. The average weight of airplanes which will be produced this year will be nearly double that of the airplanes which were in production in January, 1942."

Aircraft production in 1944 calendar year will be boosted to 1,417,000,000 airframe lbs., approximately five times the

(Turn to page 36)

Following is the summary of Air Corps projects for the 1944 fiscal year, presented to the House Appropriations Committee by Gen. Echols.

	Estimate, fiscal year 1944
Purpose of project:	
Procurement and production	($20,572,128,891)
Standard airplanes, complete	13,865,725,361
Spares for new aircraft	6,338,117,009
Special types and accessories	65,100,000
Rental, office space and other facilities in connection with procurement activities	12,271,050
Salaries, procurement, and production activities	68,212,011
Modification of new aircraft before final delivery	222,703,460
Operating (including maintenance and repair of chattels)	(2,738,646,584)
Maintenance and operation of aircraft	1,238,634,090
Operation of depots, stations, and organizations (procurement items)	447,325,370
Operation of depots, stations, and organizations:	
Labor items	640,429,149
Miscellaneous items	374,620,895
Defense-aid items (Lend-Lease)	37,637,080
Education and training	231,340,980
Research and development	(99,351,065)
Aeronautical	96,317,520
Medical	955,890
Meteorological and climatological	2,077,655
Subtotal	23,641,467,500
Departmental overhead	(13,540,000)
Civilian personnel, contingent expenses and printing and binding	13,540,000
Air Corps, Army	$23,655,007,500

In addition, other branches of the Army are provided funds for the aviation program, as follows: Signal Service, $3,085,093,494; Ordnance Service, $1,039,955,022; "miscellaneous," $624,004,096. The Corps of Engineers is provided $150,665,500 for establishment and maintenance of aviation facilities.

Commerce Appropriation Carries $64,000,000 for CAA and CAB

THE Senate has passed the 1944 Commerce Dept. Appropriation bill carrying $62,992,358 for the Civil Aeronautics Authority and $1,226,000 for the Civil Aeronautics Board.

The legislation is now before a joint conference group for ironing out House and Senate differences. Senate amendments making an increase of $35,782,358 in CAA's allocation and $64,000 in CAB's will have to be approved by the House.

To the House-approved CAA appropriation of $27,210,000, the Senate added $1,842,000 for establishment of air navigation facilities and $33,940,358 for civilian pilot training. The $1,162,000 allocated CAB by the House was increased in the Senate by $39,000 for salaries and expenses and $25,000 for the Office of Transport Information.

CAA allocations which have been accepted by both House and Senate are: $1,800,000 for general administration; $2,413,000 for establishment of air navigation facilities; $19,650,000 for maintenance of air navigation facilities; $542,000 for technical development; $2,300,000 for safety regulation; and $505,000 for operation and maintenance of Washington National Airport.

CAB allocation passed by both House and Senate are: $1,150,000 for salaries and expenses; $12,000 for printing and binding.

Establishment of Airway Facilities in Alaska. The $1,842,000 Senate addition for "establishment of air navigation facilities" will provide CAA with funds for setting up Alaska airway communications facilities. CAA intends to use $106,600 for exchange of weather information among several intercontinental stations, including Alaska.

Civilian Pilot Training. The Army is to be provided with 7,200 pilot instructors by September through the $33,940,358 recommended by the Senate for civilian pilot training, the Appropriations Committee reported.

At the present time there are approximately 14,000 enlisted reservists in various stages of CAA pilot training. The military authorities expect to reduce this number by physical screening and other means to about 8,648 by July first, and from this number it is expected that 7,200 will graduate as pilots by September. The Secretary of Commerce is required to report to Congress not later than October on the number of enlisted reservists who have gone into active service.

CAB Safety Work. The $39,000 inserted by the Senate for CAB "salaries and expenses" will enable the Board to continue its air safety work as planned during the coming fiscal year. The House struck all but $12,000 from the Budget estimate of $51,000 for this purpose on the contention that there was duplication in air safety work between CAB and CAA.

CAB Chairman L. Welch Pogue told Senators that the $12,000 would be insufficient for executing the Board's function of enforcement and promulgation of safety regulations. The Senate concurred, commenting that "safety regulation work is of such importance that adequate provision should be made for it."

Office of Air Transport Information. The Office of Air Transport Information, which is the data gatherer for the Interdepartmental Advisory Committee on Aviation and was established at about the same time, will be transferred from the Office of the Secretary of Commerce to Civil Aeronautics and allocated $25,000 for the coming fiscal year, according to the report of the Senate Appropriations Committee.

Regarding the work of the Office, the Committee stated:

"The functions of this office . . . are (1) collection of facts about aviation in the foreign field, and (2) study of worldwide aviation with the idea of establishing a national policy on domestic and foreign aviation. The future of aviation, both foreign and domestic, is of such great importance . . . that steps should be taken immediately by Congress through the proper legislative committees looking to a thorough and exhaustive study of the whole subject. Data collected by the Office of Air Transport Information would be of great value to such committees in their study of the question."

Darwin Brown, chief of the Office, informed the Appropriations Committee that the Office has compiled a world airlines schedule book, from which it is possible to tell what the air transportation pattern is in any part of the world at the present time and also what it has been in the past. This information, he said, has been invaluable to the War, Navy, State, and Agriculture Depts. and the Board of Economic Warfare.

The second main project of the Office is studies of individual air transportation companies as they have developed throughout the world.

"We have, for example, prepared the only basic report on French aviation which, so far as we know, has ever been made anywhere", Brown said, commenting that "an informed person . . . by tracing the development of French aviation from this basic study, can see the policy decisions which were made by the French Government, can see the failure of those policy decisions, and can on an actual case study basis learn how to avoid the pitfalls into which that nation fell in developing a national aviation policy.

"The same is true of the study of the Deutsche Lufthansa, the German line", he continued. "So also, the study we have made of British Overseas Airways . . . which is based on a great deal of past British political and transportation history, and from which there is much to be learned with respect to future aviation policy for this country."

Fair Ferry Pilots: Four members of the Women's Auxiliary Ferrying Squadron recently accepted delivery of a quartet of Boeing PT-17 primary trainers for the Army Air Forces. They are shown checking their maps with two AAF operations officers.

Airpower Scores

(Continued from page 18)

delivered 2,146 individual airplane sorties, the great majority of which were bomber, fighter-bomber, or strafing missions on a 6,000 yard front before the main effort of the 1st Army.

"This continual rain of bombs in front of the advancing divisions had the effect of blasting a channel from Medjez el Bab to Tunis. General Alexander's view of the effectiveness of that effort is expressed in a single sentence of his on May 8 to the Tactical Air Force: 'Without your support this drive would just not have been possible.'"

Kuter gave this graphic picture of Air-Ground cooperation:

"When the Air and Ground commanders were at the map, one saw the cockpit from which the Air-Ground war was controlled. The Air Commander not infrequently pointed out specific locations on the front which would improve the air situation if captured. The Ground commander would examine that particular location and, if possible, direct the ground forces to move on to those specific localities. In this manner, ground force support to air operations continually recurred.

"Similarly, the ground force commander would find the spots at which the ground effort had been hampered by the German air force. Normally, the necessary movements were made and action taken by the air commander to further the effort on the ground in that particular location which was, in turn, air support of ground operations.

"This daily conference and its final result showed to very high order the soundness of the airman running the air war and the soldier running the ground war, but working coordinately and with striking success toward the same objective."

Bill Empowers CAB to Manage Disposition of Surplus Planes

The Civil Aeronautics Board is empowered and directed to manage an orderly postwar disposition of surplus aircraft, aiming to prevent a drastic curtailment of aircraft manufacturing and to evade "any adverse effect" upon the air transport industry, in legislation introduced during the past fortnight by Rep. Clarence F. Lea (D. Cal.). The bill was referred to the House Interstate and Foreign Commerce Committee head by Lea.

Following is a summary of the provisions of the measure:

1. The Civil Aeronautics Board is authorized to appoint an Executive Director, to receive a salary of $10,000 a year and an Assistant Executive Director for managing aircraft disposition.

2. The head of any Federal department is authorized to transfer control of surplus aircraft to the CAB. No aircraft or aircraft parts may be "sold, exchanged, leased, transferred, or otherwise disposed of by a Federal department to any person or foreign government unless the CAB shall have refused to receive such aircraft, or shall have consented upon terms and conditions as the Board may specify, to such proposed disposition."

3. "These provisions do not apply to: (1) aircraft chartered or leased by any Federal department from any person or foreign government; (2) owned by any corporation of the U. S. including any corporation in which the U. S. has a controlling interest, which is subject to any lien in excess of the physical value of such aircraft, as determined by the Board; (3) in possession or control of any executive department, agency, board, commission, or independent establishment of the U. S. (other than the Board) which is not owned by the U. S.; or (4) being repurchased from a Federal department by an air carrier pursuant to an option entered into prior to the effective date of this title for the repurchase of aircraft sold by such air carrier to such Federal department."

Sell, Lease, Charter

4. The CAB is empowered: (a) "to sell, lease, charter, exchange, or otherwise dispose of aircraft and parts . . . owned by it with or without advertising and on such terms and conditions as it may determine; (b) to accept and hold notes, mortgages, and other evidences of indebtedness on behalf of the U. S. in connection with the . . . (aircraft disposition) and to sell or transfer on behalf of the U. S. such notes, mortgages, and other evidences of indebtedness; (c) to take over or provide for the administration, under such terms and conditions as it may prescribe, of any collateral accepted by it as security in connection with the sale, lease, charter, exchange, or other disposition of aircraft or parts . . . (d) to possess, control, rehabilitate, alter, repair, convert, maintain, assemble, disassemble, store aircraft and parts . . . and to operate aircraft to the extent necessary (to execute the purposes of the legislation) . . .; (e) to rent storage space, and buy, sell, and lease land and other real and personal property to the extent reasonably necessary to carry out the purposes of . . . (the legislation)."

5. It is declared unlawful for any person: (a) to "export, or attempt to export, from the U. S. to any foreign country, any aircraft, or parts . . . without first having submitted to the Board the name of the person desiring to engage in such exportation, the name of the purchaser, the state of consignment, the terms of the sale, and having obtained a license . . .; and (b) to import, or attempt to import, to the U. S. from any foreign country, any aircraft or parts thereof, without first having submitted to the Board the name of the purchaser and the terms of sale and having obtained a license. . . . " The Board is directed to issue such licenses when "consistent with the public interest" and after consultation with the State Dept.

6. An appropriation of $10,000,000 is authorized to carry out the provisions of the bill. The Board is directed to pay to the Treasury Dept. "as miscellaneous receipts any money received by it under this . . . legislation when such money is deemed by the Board to be in excess of its requirements." When the Board concludes its functions of air craft disposition, its balance of funds is to be paid to the Treasury Dept.

7. An Aircraft Advisory Board, to assist CAB in managing postwar aircraft disposition, is established. The Secretaries of State, Treasury, War, Navy and Commerce are directed to designate a representative from their departments to comprise the membership of the Advisory Board.

8. All provisions of the bill shall become effective 30 days after enactment, except those on "Exports and Imports of Aircraft," which are to become effective 90 days after enactment. The legislation shall remain effective until termination by Congress or by the President. Provisions on "Transfer of Surplus Aircraft" and "Exports and Imports of Aircraft," however, "shall terminate in any event on the date five years after the cessation of hostilities." The CAB is directed, as soon as it is deemed practicable, "but in no event later than five years after the cessation of hostilities, . . . (to) commence to liquidate the assets acquired by it pursuant to . . . (the legislation) and wind up its business and affairs. . . . Liquidation shall be effected . . . as rapidly as the public interest will permit."

Postwar United Nations Air Force Proposed by Sen. Ball

A "United Nations air force," superimposed over the separate armies of each of the United Nations, is pictured by Sen. Joseph H. Ball (R., Minn.) as the postwar international set-up to police the world and prevent future aggressions.

"A United Nations military force involves an international air force, it does not involve any land force in the case of the Pacific region, perhaps that air force may be supplemented by some sea squadrons," Ball stated in an interview with *American Aviation*.

Sen. Ball

Ball's plan would be a complete reversal of the policy of making the air arm a subsidiary of the land and sea services.

"Air can be the spearhead to prevent aggression when this war is over," he said, remarking, as a hypothetical example, that if the United Nations had 1,000 bomber and fighter planes based in Europe, they would, first of all, be a standing threat and discourage any aggressive move, and, secondly, be able to stave off aggression "fast." He roughly calculated that the United Nations air force would be comprised of 5,000 fighters and bombers and require about 500,000 men. Our share in this total, he estimated, might be about 165,000 men.

The proposed world air force would in no way enter the postwar commercial aviation picture, Ball said, and the force's bases and operations would be sustained wholly for military reasons.

He advocated that Germany and Japan be prohibited from manufacturing any military planes for 20 years after this war. He was inconclusive, however, on the question as to whether they should be allowed to manufacture commercial planes. "Military planes could not be manufactured in the guise of commercial aircraft," he reasoned, "but of course, the training of a substantial number of commercial pilots would involve a military threat and therefore should not be permitted."

Large armies of occupation will be necessary for a long time after cessation of hostilities, Ball claimed. But, after that phase, the proposed United Nations air force, capable of striking immediately upon the first sign of aggression, will be sufficient. Ball does not advocate the disarming of the national armies of the United Nations. "The lessons of this war will be too clearly in the minds of all," he remarked. His theory is that democratic nations will never be aggressor nations, they must debate too long, their intentions are public information. On the other hand, the totalitarian nations have the advantage of being capable of making surprise attacks, and it is such attacks that the other nations of the world must be prepared to meet quickly and effectively.

History has taught, with no margin for doubt, that aggressor nations are stopped only by the knowledge that the odds are against them; economic sanctions "are not sufficient" and cannot be sustained without interfering with the trade and economy of the nations enforcing them, he pointed out.

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23½ Billion for Air Forces

(Continued from page 33)

production of the calendar year 1942, Echols said.

Over $2,000,000,000 Needed for Operating Expense. The $2,738,646,584 allocated the Air Corps for operating expenses during 1944 fiscal year cover labor and materials for the maintenance of aircraft; the operation of depots, camps and stations; equipment and supplies to maintain and operate tactical and service units; modernization of aircraft; training of foreign students, and numerous other projects. Chinese and English pilots will be trained with an allocation of $37,000,000.

Modernization and Modification Explained. "When changes are incorporated in planes just off the production lines it is done at 'modification' centers . . . 'modernization', on the other hand, is the process of returning aircraft already in operational and combat duty to a nearby . . . modernization center to incorporate the latest changes or add new equipment to improve efficiency," Echols explained. The demands for changes in aircraft design are continuous from every theater of operation, Echols reported, admitting that it "was not impossible" to have as many as 500 changes made on one type plane. The Air Corps will require $222,703,460 for its aircraft modification work during the coming fiscal year.

14,000 Cadets to Matriculate Each Month. Air Corps plans call for the matriculation of 14,000 cadets each month in the Army's college pre-flight training program. It was estimated, though, that only about 50% of those matriculating eventually wind up as combat pilots. During the last month of the five-month college course, cadets will be given 10 hours of flying by War Training Service. The Air Corps does not intend to use WTS training after the fiscal year 1944.

As an evidence of Air Corps mushroom growth, it was pointed out that although the Army only trained 4,600 pilots in 20 years, they have trained 44,000 in two years.

The following information on Army air crashes was furnished the House Appropriations Committee.

Percentage of Total Accidents

Cause	Fiscal Year 1930-40 inclusive	1941	1942	1943 (6 mos.)
Pilot error	60.4	75.2	70.9	65.1
Aircraft structure	10.0	6.8	7.8	9.4
Power plant	9.9	6.1	6.2	8.5
Miscellaneous	9.8	3.4	3.3	3.2
Other personnel error	5.6	5.0	7.9	8.6
Undetermined	2.0	2.6	3.5	4.8
Miscellaneous material	2.3	.9	.4	.4

Air Crashes. "Our accident rate per flying hour has decreased over a period of years, but there has been a recent slight increase in the number of fatalities, due, in general, to the fact that there are more people killed per airplane crash," Echols reported. "There are more people in airplanes than formerly."

Aircraft Costs Reduced. "Reductions in the costs of airplanes, particularly the type of planes that have been in quantity production, have been considerable," Echols reported, specifying that there have been substantial reductions on the B-17, B-24, P-40, A-20, and C-47. Requirements for changes in design have offset cost reductions in certain cases, he commented.

New Product to Increase Production of 100 Octane Gas. A new product now under development, called "zylidene" will go "a considerable distance toward increasing the production of 100 octane gasoline"—one of the most acute shortages in the Army's air program, Under Secretary of War Robert Patterson told Congressmen.

Improvement in the production of aviation gas is expected by August first, and until then, the Army is doing the best it can by using lower grade fuels in training, it was reported. The U. S. is looked to to meet almost the entire aviation gasoline needs of the allied nations, it was brought out, with production other-than-U. S. amounting to only 20,000 barrels a day.

Enemy Planes Studied at Wright Field. The Army has been able to procure enemy planes to experiment with at Wright Field, Echols reported, although there was a reluctance on the part of our forces overseas to ship them home—because they wanted to investigate them themselves and note their "blind spots."

"On an over-all basis, our airplanes are all just as good as enemy planes," Echols said, commenting:

"The two German fighters, the Focke-Wulf 190 and the Messerschmitt 109-F, both have certain very desirable characteristics. The 109-F is quite maneuverable; it has a high rate of climb at a medium altitude; the fittings and the arrangement in it are probably the best of any airplane that I have seen. For instance, the pilot conveniences, the instruments that he needs most, are right in front of him, and the controls for the throttle, the propeller, the flap and landing gear are greatly simplified. From the viewpoint of arrangement, I think that it probably is as nice as any airplane I have seen. We learned a great deal from that."

Quantity Helicopter Production Slated for Mid 1944. There will be no quantity production of any type of helicopter until midyear, 1944, Echols informed Congressmen. He said that one experimental helicopter has been delivered, that delivery of an additional service test quantity is scheduled within the next few months, and that production facilities are being established for the helicopter types R-6 and R-4.

Glider Needs Difficult to Estimate. The glider program is one that has been difficult to estimate, Echols reported, explaining that "on account of the strategical planning in the various theaters of operations it is not practical to set up definite requirements." The Army, therefore, he said, has made an over-all estimate as to the number of gliders that will be needed, and has kept up sources of supply operating at least on a small scale so that a rapid expansion could be readily effected.

Marked Increase in Flight Surgeons Planned. An allocation of $6,504,641 will provide the Air Corps with 3,678 flight surgeons, a marked increase over the present number, it was disclosed. The Air Evacuation Service has evacuated approximately 30,000 persons from theaters of war, it was reported.

CAP Activities Reduced. CAP has been reduced to a courier service for the various air forces and the Air Service Command, it was stated, with the subsequent result that its appropriation for the coming fiscal year is $4,000,000 under this year's.

ATC to Train 1,200 Women Flyers. The Air Transport Command is provided $5,295,209 to train 1,200 women flyers during the coming year to do ferrying work, it was stated. The goal set by ATC for women flyers is 1,500.

Army Freight Contracts with Airlines to Increase. The Army plans to increase contracting with the domestic airlines to haul freight with the $165,515,400 allocated to it for the next fiscal year, as compared with the $99,635,678 allocated for this purpose for the present fiscal year, Echols stated. The airlines now have about 192 planes, and although they are not adding to their equipment, they will be using an increased number of Army four engine cargo planes, he reported.

The next fiscal year will be the top limit on airline work for the Army, Echols stated, but the Army will continue indefinitely to increase its own air transport operations.

Additional Aircraft Parts and Accessory Facilities Planned. The $190,000,000 provided the Air Forces for "expediting production," Patterson said, will be "mainly for use by subcontractors and manufacturers of aircraft accessories . . . to round out production, increase subcontracting and eliminate production bottlenecks." The fund will also be used for additional facilities at modification centers which "will be needed to incorporate in plane design changes required by combat operations in many theaters of war under varying climatic and operational conditions."

No considerable amount will be spent in the coming year in plant expansions, Patterson said, indicating that it would be more a case of installing new facilities in existing plants for expediting production of "new planes to be developed."

George Reports on Air Transport Operations. "The ferrying of aircraft in the U. S. has increased approximately 400% in the last year . . . the number of aircraft flown overseas . . . approximately 1,200%" —exclusive of tactical units convoyed by the Air Transport Command, Maj. Gen.

(Turn to page 41)

Charge of a "COMMANDO"

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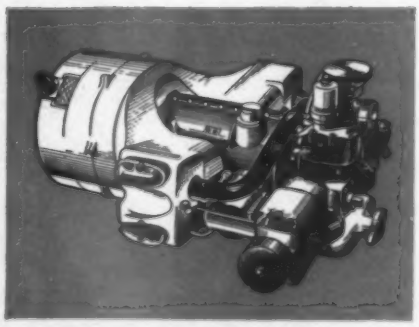

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WTS Reservists Get Back Pay; Status in Army Is Clarified

Air Corps Enlisted Reservists, sometimes called "the forgotten men of the war program," are now full-fledged, all-out contributors to the war effort. Action taken by War Training Service in the past two weeks brought them (1) substantial checks for back pay; (2) clarified their positions as members of the Army on active duty.

Checks of $50 a month, retroactive to December 15, are now being mailed by the Treasury Department as rapidly as WTS can compile the statements of individual allotments, CAA officials state. The executive order of December 15 banning all voluntary enlistments caught these enlisted reservists "in an administrative no-man's-land". They were the unfinished balance of the 25,000 men signed up by CAA at the request of the Army for training as non-combatant pilots for liaison, transport, instruction and flight officer duties.

Lacking the necessary legal authority, CAA had no way to pay them—and the men were forced to spend months waiting to be absorbed in the training program without adequate jobs because of the uncertainty of the time left at their disposal. However, in April, Senator McCarran (D., Nev.) initiated legislation, which was ultimately enacted, providing $50 a month pay, retroactive to December 15, for these reservists while in or awaiting training. It is these funds which are now being distributed to the men.

A few weeks after the passage of this appropriation, *American Aviation* learned that about 7,000 reservists would be offered other assignments in the Army Air Forces or a chance to return to civilian life subject to being drafted through regular Selective Service channels. In this way it was expected to cut the size of the reservists corps by July 1, to a group of about 7,000 men, all of whom could complete their training through the secondary instructor's course within a year. A surprise move by WTS came on July 12 with the announcement that this balance, although continuing their training under CAA, would be made members on active duty in the Army Air Forces.

R. McLean Stewart, executive director of training for CAA, told *American Aviation* this action was taken at the request of the men.

"It was not necessary but was made in their interest to boost morale and to clarify their position in the war effort," he explained. "First the men asked for pay and we got them that; then they wanted active duty and we have arranged for that."

In a formal statement he said the action had been agreed to by the Army Air Forces at the request of CAA so that the training of the men might be placed on a more satisfactory and efficient basis than has prevailed in the past.

All men placed on active duty will receive pay from the Army at the rate of $50 a month and will wear the regular AAF uniform. Their pilot training will continue to be under the supervision of WTS which will also continue to make arrangements with colleges and other institutions for ground school instruction and housing and messing of the men.

Limitations

"The only limits on aircraft are medical."

Col. Lloyd E. Griffis, chief of the research division of the Air Surgeon's Office, recently made this remark when interviewed by a Washington journalist. Griffis is the man responsible for the psychological and physiological examinations for the selection and classification of all airmen, from cadet to general.

"Airplanes can go most anywhere and do nearly anything, so our problem is to teach the men who handle them how best to use their own bodies in flying and to find the best equipment to aid them," he said.

Sen. Ball

(Continued from page 35)

Ball is a joint author of the much-publicized Ball-Burton-Hatch-Hill resolution which would place the Congress on record as favoring international cooperation in the postwar period, and, among other matters, commit it to a United Nations military force to police the world and prevent future aggressions. When the resolution was introduced it met with considerable enthusiastic support in the Senate, and significantly, no open opposition by prewar isolationists. Subsequently, it has been kept within the Senate Foreign Relations Committee, reportedly because problems connected with the proposed United Nations military force provoked controversies that it was deemed unwise to have publicly aired on the Senate floor in the midst of the war.

During the past fortnight, however, the House passed a resolution, in essence the same as the Ball-Burton-Hatch-Hill proposition, although less specific and less committal. The House resolution, sponsored by Rep. Fulbright (D., Ark.) merely resolves "that the Congress hereby expresses itself as favoring the creation of appropriate international machinery with power adequate to establish and to maintain a just and lasting peace, among the nations of the world, and as favoring participation of the United States therein."

Senators Ball, Burton (R., Ohio), Hatch (D., N. M.), and Hill (D., Ala.), while commending the House in its rapid approval of the postwar U. S. policy of international cooperation, have indicated that they are still going to work in the Senate, for a measure with more "teeth," for a resolution that will be more assuring to our allies and to our enemies of the postwar intentions of the U. S., and specifically commit the Congress to the policy of a United Nations military force.

AAF Funds

(Continued from page 36)

Harold L. George reported on ATC's work.

"Our airways around the world and in the U. S. are now about 100,000 miles long" and are dotted with over 200 stations, "ranging from bases that are as large as anything in the U. S. in number of personnel to ones that are manned by 40 or 50 people . . . The routes were established after reconnaissance by the ATC to determine the shortest and the best routes for insuring highways over which our aircraft could be speedily flown to the various theaters," George said.

He summarized: "Our planes are carrying the materials which are essential to keep aircraft functioning, to keep the tank units working. They are carrying medicines which are essential for the protection of human lives, and they are transporting personnel from one theater to another . . . In the last year we completed over 50,000 domestic and foreign ferrying movements, flying slightly more than 80,100,000 miles in round numbers. Last December we flew 100,000 lbs. of Christmas mail to the fronts and stations all over the world."

"The nature of the logistical problem requires the ATC operations to be flexible and constantly changing," George observed. "For reasons of high strategy it may be decided to give one front temporarily more of the high-speed air service than another, or a change in the tactical situation may require a rush of supplies to a certain spot."

A successful offensive will create new demands for materials to be delivered in a hurry, he predicted.

The high importance of air transportation in the war and of the work of the ATC, is revealed in the story George told Congressmen:

"When Rommel was pushing the British back into Cairo and it looked as if he was going to run the British out of antitank ammunition, we were called into service. There was none of this ammunition nearer than the U. S. or England, and if it were attempted to send it by water it would have been a matter of five or six weeks at the best. There were appeals for ammunition—appeals to bring it by air if possible. The War Dept. received the request over here and I received an order to move as much ammunition as possible. Within 24 hours from the time we received that order we had airplanes loaded down to capacity with antitank ammunition. The crews were impressed with the importance of their mission. They flew, in their enthusiasm through some of the worst weather ever flown through, and they did so to get the ammunition over there. Within 72 hours from the time they left with the ammunition they arrived at Cairo.

"I do not say that stopped Rommel. It was the British Tommy over there and the antitank guns, but without that ammunition they could never have done it. It was a splendid demonstration of the value of air transportation in this global war."

CAA Studies Postwar Traffic Control

Warns ATC Against BecomingBottleneck; Urges Improvements

A BLUEPRINT for the future development of the air traffic control system in the U. S., which by 1950 is expected to be handling 60,000,000 aircraft movements annually (compared with an estimated 13,000,000 in fiscal 1943) has been drawn up by the Air Traffic Control Division, Office of Federal Airways, Civil Aeronautics Administration.

The comprehensive CAA study, which has been submitted to the industry for comment, warns that "if air traffic control fails to meet the standard of efficiency dictated by the advance of air transportation, it will become the bottleneck restricting the growth of air traffic."

If present methods, procedures and facilities are not changed, "and greatly changed," in the next few years, "traffic will have to be restricted, or, if the war cannot permit it to be delayed, will have to move under increasingly hazardous conditions," the study asserts.

Recommendations for immediate improvements, improvements to be made by 1945, and long-range improvements are contained in the study, which has been concurred with by the air traffic control committee of the Radio Technical Committee for Aeronautics. Members of the committee include representatives of the Army Air Forces, Navy, Interdepartmental Air Traffic Control Board, Air Transport Association, Air Line Pilots Association, Aircraft Owners and Pilots Association, Civil Aeronautics Board and CAA. Glen A. Gilbert, chief of CAA's air traffic control division, is chairman of the committee.

Essential Instrument

Not until each airplane has an instrument showing the pilot the position of all planes within a specified radius and distance above, below and ahead will the danger of collision be eliminated, the study explained, emphasizing that such an instrument is "considered essential" for the proper control of future air traffic.

"Just as the need for railroad and automobile traffic control has increased as technical improvements were made and traffic grew, so will air traffic control be needed even more in the future than it is today," it continued. "Improved aircraft design, improved instrument weather operation and improved airport and airway facilities will greatly simplify the operation of aircraft, but they will not insure the efficient movement of traffic, or even the avoidance of collisions until every aircraft has its separation indicator, which is unlikely to be less than 10 years after such equipment is first available. Until that day comes air traffic control will have to continue to provide *both* protection and efficiency of movement."

The study explained that air traffic control has two divisions: airport traffic control, which functions in the immediate vicinity of airports to guide arriving and departing traffic, and airway traffic control, which functions throughout the 35,000 miles of civil airways to guide traffic en route and fit it in properly with other traffic at destination.

"Airway Traffic Control operates within the airspace of the entire system of civil airways, which is divided, for practical reasons, into 23 geographical units called areas," it stated. "In each such area the traffic is controlled from one office, called the Airway Traffic Control Center. Since the normal flow of traffic within an area presents a problem too great for one man to control, the areas are further sub-divided into smaller geographical units called sectors . . .

"Within each center, the required flight data tabulations are made up of removable paper strips slid into strip holders clipped in place on 'flight progress boards.' The tabulations are divided into sections, one for each radio fix along the airways. The identification of each aircraft in flight is written on a strip for each fix along its route, together with its estimated time and proposed altitude at that point. Notations of instructions issued are added, and as the flight progresses, the actual time and altitude of passing over each fix are entered."

Movements Increase

The number of aircraft movements handled by airway traffic control has increased each year, the number handled in fiscal 1942 being more than three times that handled in 1941, according to the report. In 1943, the number will be between 13,000,000 and 14,000,000, including only flight plan or point-to-point traffic, local flights ordinarily not being handled by airway traffic control.

"Taking into account the many predictions by aeronautical experts and weighing the optimistic against the conservative, it is estimated that the number of air carrier passenger and freight movements will increase from an estimated 815,000 movements in 1940 to approximately 10,000,000 . . . in 1950.

"By that time, as the operation of aircraft becomes easier, safer and cheaper, the number of privately owned aircraft may reach a little higher than 1% of the number of automobiles and in combination with military aircraft, should produce from 45 to 50 million movements to be handled by airway traffic control. It therefore appears that the total number of scheduled and non-scheduled operations to be handled in 1950, will probably reach 60,000,000 movements.

"Not all of the movements handled by airway traffic control, however, require control or posting on the flight progress board. Many non-scheduled movements operating under contact flight rule flight plans are handled by other than control personnel. The movements handled by control personnel are those which require issuance of control instructions and posting on the flight progress boards. Control personnel and facilities are expected to have to handle 20,000,000 out of the total 60,000,000 movements in 1950.

"These figures are valuable in showing trends, but, as demands on control personnel and facilities are not uniform but occur in peaks, it is necessary to break these national yearly figures down and study peak traffic periods in individual airway traffic control areas and even in sectors. Based on examination of past traffic records in the New York and Washington airway traffic control areas and on the trend shown by the national yearly totals, it was found that control personnel and facilities in these areas will, in peak periods, have to contend with between 900 and 1,000 movements per hour by 1950, with the busiest sector in each handling between 250 and 300 per hour. By 1946, the peak for the busiest sectors will reach about 150 movements per hour.

"These estimates represent the traffic which will move. Whether or not it will be able to move will be governed by three factors: (1) the capacity of the airspace, (2) the capacity of landing facilities, (3) the capacity of air traffic control.

192 'Movements'

"Under instrument flight rule conditions a single stretch of airway has at present a theoretical capacity of 192 aircraft movements per hour passing over a given point; a practical capacity of 125-150 per hour. By 1950, with higher flying altitudes, reduced separation and faster aircraft it should reach at least 400 to 500 movements per hour.

"Airport capacity under contact flying conditions can reach from 60 to 75 movements per hour per usable runway. By providing multiple runways, instrument landing systems, approach control, and at some cities, multiple airports, airport capacity can be made fully adequate.

"Adequate airway and airport capacities in instrument flying conditions can be provided by appropriate expansion of facilities, and air traffic control, therefore, must avoid becoming the *bottleneck limiting the growth of air traffic.*"

The CAA study recommended that the following changes in regulations and methods be adopted at once:

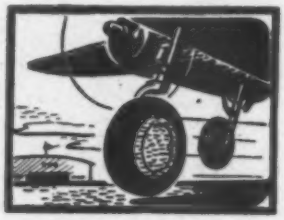
1. The division of each airway traffic control area into sectors of minimum size and division of control in each such sector between several controllers, be planned

(Turn to page 60)

ATC Aid: This automatic system for electrical presentation of flight data was installed in the airway traffic control center at Washington National Airport two years ago. Experience gained with this installation has made possible the drafting of specifications for a communications and posting system adapted to the high air traffic rates anticipated in the future, CAA states.

One of the first steps in synthetic rubber manufacture... dozens of special chemicals are mixed before being joined with butadiene and styrene in special reaction tanks.

The Facts About Synthetics in Airplane Tires



To discover how synthetics can best be used in the products of the rubber industry is a field to which technical men of the United States Rubber Company have long applied their skill. In their minds there were no preconceived ideas, no "pet synthetics." There has been only one prime objective . . . to produce the best products that can be built.

They found that to be most effective, an airplane tire built with a synthetic rubber tread should also have a synthetic cord body. The reason is simple. Synthetic rubber develops more heat in flexing than natural rubber. The thinner rayon carcass minimizes the development of heat. Also, when the tire gets hot, the strength of rayon does not decrease as much as the strength of cotton.

In January, 1942, working with the Army Air Corps, "U.S." developed a synthetic airplane tire. Test after test proved that this tire was equal, and in some ways superior, to the best natural rubber tire made. Today, synthetic tires for airplanes and for many other military vehicles are the order of the day.

Synthetics in airplane tires do not mean just synthetic rubber. They also include rayon and Nylon which, in their fields, seem to hold just as great a future. Where this combination of synthetics may lead is still unknown, but whether made from Nylon, from rayon, from cotton cords, or from spider-web-thin steel, from synthetic rubber or natural rubber, "U.S." will build better and better tires as its technical men open up new methods and new materials for the America of tomorrow.

Listen to the Philharmonic Symphony program over the CBS network, Sunday afternoon 3:00 to 4:30 E.W.T. Carl Van Doren and a guest star present an interlude of historical significance.

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TWA Studies Aid to Other Nations Starting Airlines

JACK FRYE, president of Transcontinental & Western Air, Inc., has revealed to *American Aviation* that his company has launched a study project to determine what nations of the world could be aided by the United States after the war in setting up national airlines.

Major purposes of such aid to foreign countries would be to absorb sizeable numbers of U. S. pilots, mechanics and other personnel when the war ends, and to put surplus aircraft to good use.

Arrangements with foreign countries would be on a temporary basis so that national companies could take over the operations in their entirety after the U. S. personnel had organized the routes and operations and trained nationals to fill all positions. From 10 to 20 years might be needed in some countries to complete the projects, with U. S. help decreasing as quickly as nationals would be capable of taking over.

TWA is now making an extensive study of all foreign countries which might welcome U. S. assistance, Frye said. Although expansion of the U. S. domestic and international airline industry will require all skilled and trained men in time, he pointed out, there will be a period immediately after the war when surpluses of manpower are available.

He believes such a plan would be of great benefit to both the U. S. manufacturing and the air transport industry in that American equipment would be in actual use in many areas of the world and these countries would look to the U. S. for replacements. On the operating side it would mean more uniform operating procedures which would tie in with whatever international routes are operated out of this country.

The benefits of sending thousands of war-trained air specialists to other countries immediately after the war would be enormous, he said.

"Our government should offer to lay out in every country which now has inadequate air transportation a modern efficient airline system", he said. "Our pilots could teach flying, our mechanics could give ground instruction, our engineers could build airports, and our traffic men could put into operation methods which have been successful in this country.

"We might loan out our airplanes by Lend-Lease or some other method. This would cultivate the habit of using American planes and would result in a tremendous export business in planes alone. Each nation, however, would be expected to pay the salaries of Americans who were organizing the national airline systems."

Frye has discussed the plan briefly with a few government officials and will lay the program in detail before the government when the TWA studies are completed.

He emphasized that his plan is merely to help other countries get started on their own airline systems, and that American aid would not continue indefinitely. He also emphasized that the plan involves only the setting up of national airline systems and not international lines. He mentioned China as an especially good example of a great nation needing assistance in establishing airlines.

Expresswoman: Helen Brusack is one of the woman air cargo handlers at La Guardia Field, New York. Recently she checked every piece of air express in a 2,000-pound load and scientifically stowed the cargo aboard a plane in 45 minutes.

Matson Plans Airline in Pacific; Schmidt Heads Air Division

The plans of Matson Navigation Co. for airline routes in the Pacific have progressed to the point where the company has purchased 45 acres of land at San Francisco airport and has hired T. A. Schmidt, formerly of American Airlines, to head its aviation division.

Schmidt, who recently resigned as American's coordinator of military operations after 15 years with that company, told *American Aviation* recently that "Matson has decided to go into the Pacific in the matter of air transportation." He stated that the company will eventually file application with the Civil Aeronautics Board, and hopes to start some operations before the end of the war.

Schmidt emphasized that Matson wishes to fly over its steamship routes and not necessarily parallel existing airlines.

In purchasing land at San Francisco airport, Matson has acquired ground facilities which include shops, offices and a hangar. Facilities were taken over from Hammond Aircraft.

TCA Denied Local Victoria Service In Important Case

In an important decision, the Board of Transport Commissioners of Canada has refused permission to Trans-Canada Air Lines to operate a local air service between Vancouver and Victoria in competition with the already operating local service of Canadian Airways, subsidiary of Canadian Pacific Air Lines.

TCA received permission, however, to extend transcontinental air service to Victoria on a through-line basis.

The Commissioners in a unanimous decision stated that "to permit the transport by Trans-Canada of local traffic between Vancouver and Victoria would result in unnecessary duplication of air transport service between these two points in respect of such traffic and would not be in furtherance of the objects of the Transport Act, 1938."

In reporting the action, the Montreal *Financial Post* said that "TCA is still in the same position as any ordinary competitive carrier when it comes to application for license before the Transport Commissioners." It also stated that the decision was important because "the 'rights' of airline services now operating 'local' services cannot be wiped out whenever the government-owned concern wishes to establish 'main-line' service."

Canadian Aviation magazine commented that "the decision was in favor of private enterprise as opposed to public ownership although that point did not enter into the information considered before the board made its findings."

Set American Republics Aviation Commission in Motion, Ryan Urges

Oswald Ryan, member of the Civil Aeronautics Board who has just returned from a trip to Mexico, is urging the setting in motion "at the earliest practicable date" of the permanent Aeronautical Commission of the American Republics authorized by the Lima Conference of 1937. This commission is popularly known as CAPA.

"This Commission of the American Republics", he said, "has already received the official approval of a sufficient number of American governments to make it effective. The Governments of Mexico and the United States have already approved the commission. The next step to be taken is the setting in motion of the machinery for the accomplishment of the purposes of CAPA.

"CAPA offers a great opportunity to civil aviation in this hemisphere. Its purposes are the promotion of uniformed standards and procedures in all countries of this hemisphere, with the view to accomplishing a hemispheric unity in civil aviation. The international commission will be composed of the various constituent national commissions appointed by the respective participating governments. The fulfillment of its objectives will mean an unprecedented expansion of civil aviation in all Latin American countries. Its program is in accordance with the Good Neighbor Policy".

The "Northrop group" of Americans doesn't fool around

It is twenty-five minutes to midnight. Toward their jobs walk some of the thousands of our home front fighters, men and women whose work tonight will fly by tomorrow's dawn

THEY ARE filtering in to take over the graveyard shift. Inside, the swingshift is working. Mechanical "routers" whine through metal—you can hear the din of rivet guns. At quarter to midnight an electric whistle will sound and the swingshift will lay down their tools, but at that moment the men and women you see here will be at their places, working.

There is no waste interval between shifts in this plant. *The Northrop group of men and women doesn't fool around.*

Men known wherever planes are flown lead this Northrop group. Around them they have gathered many kinds of engineers and production men . . . group leaders . . . men and women who have become skilled at riveting, welding, sheet metal fabricating . . . all the thousands of earnest, able people it takes to whip dead metal into living warbirds.

Folks come here from many places, out of many walks of life—and stick! They stick to this group that doesn't like slowdowns or lost time. Why is that?

Maybe the Northrop group works together because nobody around here has any use for red tape or pride of position. Maybe because a person working on Northrop's part of the production battlefront *knows* he's doing a real job of fighting the Axis.

For in the over-all plan of U.S. plane production, vitally important tasks have been given to the Northrop group. Tasks that have placed many fighting warplanes on the battlefronts of the world. Tasks that challenge the best in any man or woman.

NORTHROP AIRCRAFT, Inc.

NORTHROP FIELD, HAWTHORNE, CALIFORNIA

MEMBER AIRCRAFT WAR PRODUCTION COUNCIL, INC.

A NORTHROP "FIRST" IN 1934

Coast-to-coast with air mail in 11 hours 31 minutes

The airplane above is a Northrop "Gamma" designed and built ten years ago by the Northrop group.

On May 14, 1934, Transcontinental & Western Air flew this single-motored ship, fully loaded with mail, from Burbank, California to Newark, N. J. in just 11 hours, 31 minutes—five hours faster than today's scheduled air mail.

Other Northrop "Gammas" sold to China were the first attack bombers. Today Northrop "Gammas" are still serving the United Nations actively on at least two continents.

UAL, TWA, EAL Get Washington Routes

CAB Denies Diversion of Traffic Will Hurt American or PCA

By Eric Bramley

IN ONE of its most important decisions this year, the Civil Aeronautics Board on June 7 awarded air routes which will result in placing the nation's capital on all three transcontinental air routes and at the same time will establish direct service between Washington and St. Louis.

United Air Lines was awarded the 389-mile route between Toledo and Washington with no intermediate stops; TWA received a 401 mile route (415 miles via Pittsburgh using existing airway facilities) between Dayton and Washington via Columbus and Wheeling, and Eastern Air Lines becomes the operator of a St. Louis-Washington line, with new stops at Lexington-Frankfort, Ky., and Charleston, W. Va.

Although the EAL certificate is from St. Louis to Washington, the only new mileage involved (473 miles) is from Louisville to Washington, inasmuch as EAL already operates St. Louis-Louisville via Evansville.

May Start Soon

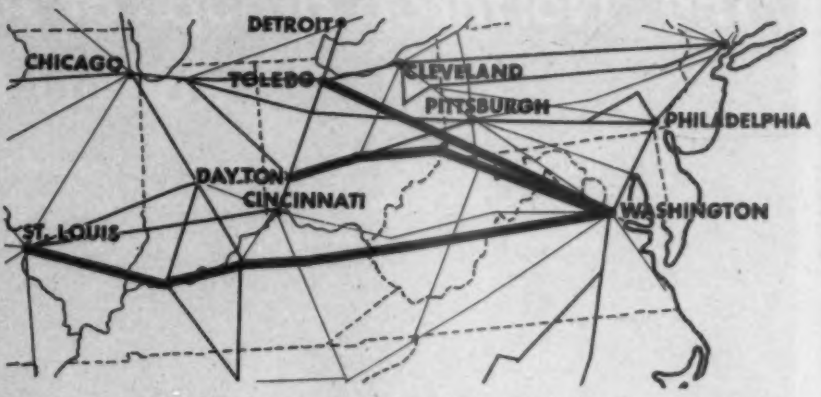
The Board stated that the new routes will not be opened until national defense requirements permit. However, it is understood that some of the carriers involved may be able to institute service at an early date by re-shuffling equipment.

The Board's decision, which was unanimous, asserted that establishment of the routes "will contribute importantly to the development of a geographically and economically integrated system of air transportation properly adapted to the present and future needs of the commerce, the postal service and the national defense."

Unique Position

Government, private industry, conventions and tourists have all contributed to making Washington the third most important air traffic center in the U. S. at the present time, it pointed out. There is no reason, it continued, "to believe that it will not continue to maintain that rank as a traffic-producing center. As the nation's capital, Washington is unique among all cities in the country in that it has daily dealings with every city and town in the nation, affecting every citizen. Washington's community of interest pervades the entire United States. The future of air transportation to and from Washington lies in a recognition of the fact that the city does occupy this unique position."

TWA and United, the Board said, serve different cities and substantially different regions. "Air travel to Washington from the far west by both applicants is substantial and the proposals herein will afford a materially improved service by competing carriers over alternative routes through densely populated and important industrial and economic areas, many of which are not served by American, the only transcontinental air carrier presently serving Washington."



Pictured above are the three new routes which, when opened, will provide additional service to the nation's capital. Heaviest lines are the new routes, next heaviest are other routes operated by United, Eastern and TWA. Lightest lines are routes of other carriers. Although the new EAL route is certificated from St. Louis to Washington, only new route mileage involved is from Louisville to Washington.

In awarding Eastern St. Louis-Washington and denying TWA a similar route, the Board admitted that EAL's route will provide a competing service between the terminal points with service TWA will be able to offer between St. Louis and Washington via Dayton. "However," it added, "the importance of these two termini from an industrial, economic and transportation standpoint would seem to merit the establishment of competitive services, particularly when such competition will be afforded over divergent routings through different but important industrial areas."

The Board considered at some length the contentions of American and Pennsylvania-Central Airlines that they would suffer serious diversion through award of the new routes.

At UAL Banquet: United Air Lines' recent resumption of service into San Diego, Cal., after a year's temporary suspension due to war conditions, was the occasion for a banquet in the California city. Among those present were, left to right: Maj. Gen. Joseph Fegan, U. S. Marine Corps, commanding Camp Pendleton; Albert G. Reader, vice president of the San Diego Chamber of Commerce; Homer J. Merchant, western sales manager of UAL; and Earl Prudden, Ryan Aeronautical Corp., who was master of ceremonies.

However, it noted that "the end of the present world conflict should see an unprecedented development in the field of air transportation with a widespread increase in the use of this mode of transportation with a consequent increase in volume of both passengers and property carried by air.

Not Justified

"With this increase in the acceptance and use of air transportation, we do not believe that the interveners are justified in their fears that the authorization of the proposed routes will jeopardize the financial stability of existing carriers. The inauguration of one carrier and, in many instances, one-plane service between the various important areas affected by the proposed routes and Washington, should generate substantial increases in Washington traffic. Furthermore, any loss of traffic suffered by PCA should be substantially offset by the development of an increased volume of local traffic, particularly on its densely-populated and excellent traffic-producing route No. 14. (Route 14 is PCA's route from Norfolk to Detroit—Ed. Note).

"Thus, while the proposed routes will probably divert some revenues from existing carriers at the inception of the service, we think that any adverse effects will be temporary only and will be offset by the general increase in air travel and other factors discussed hereinbefore. Furthermore, we believe that the benefits which will accrue to the public in improved air service of a national character are of controlling importance."

Using figures submitted by PCA, the Board calculated that diversion might be $246,533.37, or 5.96% of the company's system passenger revenues for the year ended June 30, 1940, or 8.34% of the passenger revenues of route 14 for the same period.

Approximately $320,000 of American's annual revenue might be diverted, or 2.01% of that carrier's total 1940 passenger revenue, it said.

In a release issued following the decision, United said that it proposes to fly the 389-mile stretch between Toledo and Washington in 2½ hours, and from Washington to Chicago in 3¾ hours.

Message on the Fly!

"SEND ammunition immediately!"—a typical wartime message that often can't be sent by radio for fear of enemy detection. This is where the Piper L-4 "Grasshopper" renders a real service. By following the method pictured above, the Piper L-4 swoops down, picks up the message on the fly with a hook and speeds it to headquarters. This is but one of many wartime uses of the Piper L-4. The development of these uses will result in a finer peacetime Piper Cub for you.

FREE BOOKLET ON HOW TO FLY. Send today for your copy of "You, Too, Can Fly!" If you also want the full-color Piper catalog, enclose 10c in stamps or coin for postage-handling. Piper Aircraft Corporation, Dept. AA73, Lock Haven, Penna.

PIPER Cub

Points the Way to Wings for All Americans

U. S. Public Must Be Educated on Plane Priorities—Sheehan

Stresses Need for Proper Consideration of Cargo Shipments

By MAJ. WILLIAM M. SHEEHAN

(Maj. Sheehan, well-known air cargo expert, is now chief of the Air Branch, Traffic Division, Army Air Forces. The opinions expressed herein are his own and not necessarily those of the Air Forces.)

PROBABLY the toughest traffic problem faced by the Army Air Forces in the United States today is the administration of air transportation priorities.

The basic difficulty is, of course, lack of transport aircraft. Despite constantly soaring demands for passenger, mail and express air transportation, we now have only half the fleet of Douglas, Lockheed and Boeing airliners that barely met pre-war traffic needs. Recently, six transports were allocated to the domestic airlines. But with increased demand on the one hand and decreased transports on the other, we are still squeezing both ends against the middle.

Sheehan

As a matter of fact, it is doubtful whether two or three times as many transports would fill present requirements. The country's unprecedented industrial and military activity affords many instances where shipments needed in the war effort have been routed by slower surface means because the saturation point in air transport capacity had already been reached.

Priorities Important

All this makes the subject of air priorities of surpassing importance, for priorities constitute a simple and logical method of insuring speedy movement of shipments necessary to the prosecution of the war.

Oddly enough, there is much misunderstanding as to the nature and importance of air priorities.

Priorities are licenses, usually granted verbally, for preferred consideration in the allotment of aircraft space. They are issued by the Air Priorities Division, Air Transport Command, Washington, D. C., by the 17 Regional Air Priorities Control Offices of the Air Priorities Division located in various parts of the United States, and by certain other designated representatives including individuals whose duties require a special knowledge of the movement of personnel and shipments vital to the war effort, who have been issued "letters of authority" empowering them to issue priorities of a restricted nature.

It should be stressed that no shipments will be afforded priority via air express except when such shipments are essential to the war effort, *and then only when the speed of air transportation is necessary to enable the shipment to meet an established deadline.*

Let us suppose that the traffic manager of, say, the New England Screw and Bolt Company is instructed to ship in the fastest manner possible a large quantity of screws urgently needed by an aircraft manufacturer on the West Coast. He calls the local Regional Air Priorities Control Office and supplies the following information:

(a) Names of consignee and consignor.
(b) Shipment "from" and "to".
(c) Name of individual through whom shipment may be located.
(d) Number of pieces—the weight and dimensions of each piece.
(e) If shipment can be divided into two or more small packages.
(f) Time shipment *must* arrive at destination.
(g) Information to justify the need for priority.
(h) Government department or agency in the interest of which the shipment is to be made.

Partial Priority

In all probability the Regional Air Priorities Control Office will issue the priority for only that part of the total quantity of screws which are needed at the West Coast factory prior to the date when a rail express shipment may be expected to arrive. The traffic manager accordingly forwards the screws in two or three separate shipments: a small portion, packed with minimum tare, via priorities air express; a larger portion via rail express; and perhaps the bulk via rail freight.

The Regional Control Office communicates by telephone with the Local Priority Representative of the airlines who in turn contact the Air Express Division of the Railway Express Agency in the city of origin of flight, authorizing it to fill out a priority label showing the priority number, class, routing, destination, deadline date and number of pieces and attach this to the shipment in question.

The carrier airline accepts the shipment, giving it precedence over all other shipments of lower classification, and, in the usual case, carries it swiftly to destination.

The domestic priorities situation gives rise to some interesting problems. For example, there is the question of the number of classifications. At present there are four, as follows:

Class 1. Gives precedence over all other traffic—on passengers and shipments the delay of which will seriously and directly impair the war effort.

Class 2. Includes passengers and shipments the transportation of which by air is absolutely necessary to the accomplishment of a mission essential to the prosecution of the war and which is of an extremely urgent nature.

Class 3. Includes passengers and shipments the transportation of which by air is vital to the war effort but not of an extremely urgent nature.

Class 4. Includes passengers and shipments the transportation of which is of sufficient importance to the war effort to justify transportation by air but not as urgent as those in the higher classifications.

The more classifications there are, the more red tape and confusion. It has been suggested that the existing classifications be reduced to three—hot, hotter, hottest.

A problem which is especially difficult of solution is that of treatment of passengers and shipments within a given classification. Theoretically, a Class 4 express shipment has just as much right to space as a Class 4 passenger, and a non-priority package as much right as a non-priority passenger. However, in practice the passenger wins out every time. He can scream, the package can't. The airlines attempt to allocate space justly between cargo and passengers. But if en route something has to be removed for a higher priority, it's the unprotesting express which inevitably gets bumped off.

Incidentally, when the choice of removal lies between one passenger or an equivalent amount of express, it should be remembered that something like 12 consignees (present average weight of air express shipments being 17 pounds) are inconvenienced when express is removed, as against one customer when a passenger is removed.

Perhaps the most difficult problem which confronts the priorities administrators is that of educating the general public as to when to request priorities, and when not to. In all too many cases, shipments which merit a priority are sent without one—either because the shipper would not be bothered with the time and telephone expense necessary to procure the priority or because he was under the illusion that the shipment would proceed uninterruptedly without one.

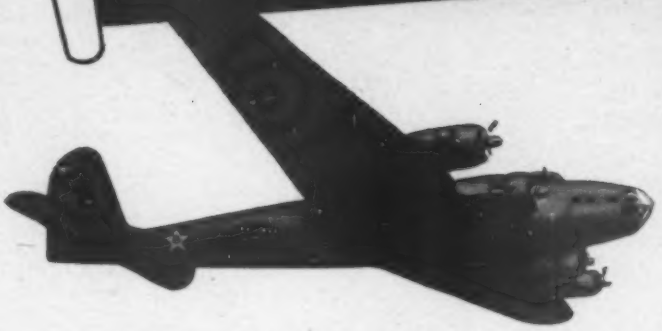
Solution Suggested

One solution might be to encourage the consignee, as well as the shipper, to request the priority. The shipper has specific data relative to weight, dimensions etc. required by the Air Priorities Control Office before priority can be granted. Yet it is the consignee who knows better when the shipment must arrive at destination and who can furnish information justifying the need for priority.

From time to time one hears criticism of the way in which the air priorities job is being handled. But the fact is that Colonel Ray Ireland, his chief assistants, Lt. Colonel Laigh Parker, Lt. Colonel John Clemson and Major James Rauen, as well as his many deputies in the field, are doing a bang-up job.

There is still another type of application upon which it is not easy to pass judgment, for instance, that of a passenger who can obtain a seat only through a priority and who is frantically anxious to arrive at the bedside of a dying relative. Difficult decisions must be made hundreds of times each day. Occasionally the Air Priorities Division may slip up. That is only natural. But on the whole their record is outstandingly good. Their task would be considerably lighter if the shipping public would request priorities only when the shipment is essential to the war effort and only when no other form of transportation enables meeting an established deadline.

The Story Behind the AIRESEARCH INTERCOOLER

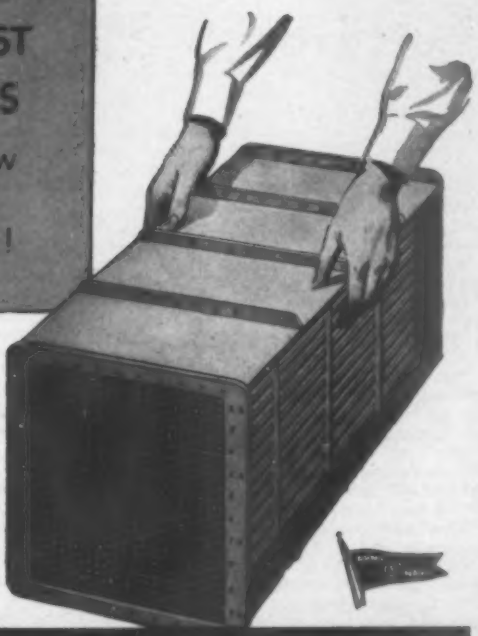


1939 Boeing's first Flying Fortresses took to the air ...power plants supercharged for high-altitude flying. Intercoolers on this early design weighed 92 lbs. each. Designers wanted that weight cut.

1940 The assignment was given to AiResearch's specialists in air control systems. Our engineers, working with Boeing, developed and tested scores of new designs. Result—

AiRESEARCH PRODUCED THE FIRST ALL-ALUMINUM INTERCOOLERS

Weighing only 32 pounds, these new intercoolers provided a saving of 240 pounds for each Flying Fortress!



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CAN YOU USE this kind of experience...: this specialized "know how" of high-altitude pressures and temperatures and their automatic control? The answers that AiResearch engineers have developed in these fields for today's aircraft may help you in many ways tomorrow. Your inquiries are invited.

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"Where Controlled Air Does the Job"

Engine Air Intercooling Systems · Supercharger Aftercooling Systems · Automatic Exit Flap Control Systems · Engine Coolant Systems · Engine Oil Cooling Systems

New Hostesses: Mary Broderick (center) and Judy Evans receive their diplomas as full-fledged hostesses of Pennsylvania-Central Airlines from C. Bedell Monro, president of the company. Fifteen young women were graduated at exercises in PCA's general offices at Washington National Airport.

Canadian Pacific to Use Helicopters for Its Northern Routes

Canadian Pacific Air Lines is looking forward to extensive use of the helicopter along its northern routes, according to a statement by C. H. Dickins, vice president and general manager.

"When the present small but practical helicopter is developed into a large commercial machine with pay-load possibilities, it will have a definite place in Canada's air picture and particularly along the northern routes operated by this company," Dickins said.

He said he felt it would be an invaluable type of equipment in mountainous or difficulty country, particularly along the Arctic coast. Dickins said he felt it would be especially advantageous for rescue operations and possibly for short interurban runs as an aerial taxi.

Mail Rate Reduction Proposed for Panagra

Pan American-Grace Airways has been ordered by CAB to show cause why its air mail pay should not be set at 31.67c per airplane mile, effective June 1.

The rate, which would apply to months when average daily mileage did not exceed 10,060 miles, would be for base loads of 300 lbs., plus .05 of a cent for excess.

The present mail rate on the Panagra system is 50.77c, CAB said.

During the war, it added, the company should be permitted to earn a return of 10% on its investment after taxes. The proposed rate provides such a return.

CAB's estimates of the company's revenues for the coming year, not including U. S. mail pay, were: passenger (net), $3,345,965; baggage, $158,052; express, $857,038; foreign mail (net), $770,504; other, $114,193, or a total of $5,245,752.

Expenses were estimated at: aircraft operations, $1,706,569; repairs, $687,922; depreciation, $412,653; self-insured risks, $104,710; ground operations and maintenance, $1,172,745; communications, $259,800; depreciation, $336,227; general, $330,000; traffic, $443,349; agency, supervision, etc., $452,376, or a total of $2,994,497.

Federal Agencies Expend $2,640,208 For Air Travel During Last Half of '42

Federal departments and agencies spent $2,640,208 for airplane travel during the period from July 1 to Dec. 31, 1942, the joint Congressional Committee on Reduction of Non-Essential Federal Expenditures reported recently. Railroad travel amounted to $6,379,630, the report said.

The detailed report follows:

Bureau of the Budget	$ 2,431.72
National Resources Planning Board	4,903.64
Office for Emergency Management:	
Liaison Office	115.55
Division of Central Administrative Services	13,563.15
National War Labor Board	11,893.44
Office of Alien Property Custodian	5,641.53
Office of Civilian Defense	24,501.23
Office of the Coordinator of Inter-American Affairs	55,391.60
Office of Defense Transportation	14,367.36
Office of Economic Stabilization	152.17
Office of Lend-Lease Administration	4,035.19
Office of Scientific Research and Development	25,181.70
Office of War Information	50,032.05
War Manpower Commission	23,900.01
Selective Service System	1,605.79
War Production Board	800,834.81
War Relocation Authority	10,667.30
War Shipping Administration	6,924.45
Board of Economic Warfare	134,979.08
Office of Censorship	4,331.60
Office of Price Administration	50,127.90
Office of Strategic Services	133,490.59
Bituminous Coal Consumers' Counsel	24.40
Civil Aeronautics Board	1,136.96
Civil Service Commission	4,460.54
Commission of Fine Arts	317.32
Employees Compensation Commission	2,548.00
Federal Communications Commission	21,304.14
Federal Deposit Insurance Corporation	1,013.10
Federal Power Commission	1,765.40
Federal Security Agency	54,895.18
Federal Trade Commission	34.65
Federal Works Agency	122,691.27
Government Printing Office	708.32
Interstate Commerce Commission	1,439.76
National Advisory Committee for Aeronautics	4,065.86
National Housing Agency	53,118.18
National Labor Relations Board	7,282.19
Panama Canal	143,156.75
Reconstruction Finance Corp.	71,951.52
Export-Import Bank of Washington	2,951.83
Securities and Exchange Commission	3,895.20
Tariff Commission	942.90
Tennessee Valley Authority	4,110.25
U. S. Maritime Commission	2,072.00
Veterans' Administration	1,265.20
Department of Agriculture	33,138.00
Department of Commerce	50,940.84
Department of Interior	35,421.59
Department of Justice	116,417.00
Department of Labor	32,845.42
Treasury Department	39,858.00
Department of State	437,658.49
Post Office Department	4,646.18
Library of Congress	4,261.15

AA Shows Good Net Profit for Quarter

With only 43 planes, American Airlines, Inc., Jackson Heights, L. I., N. Y., in this year's first quarter operated 6,120,963 revenue airplane miles, against 7,823,003 with 74 planes in the same period of 1942, company discloses.

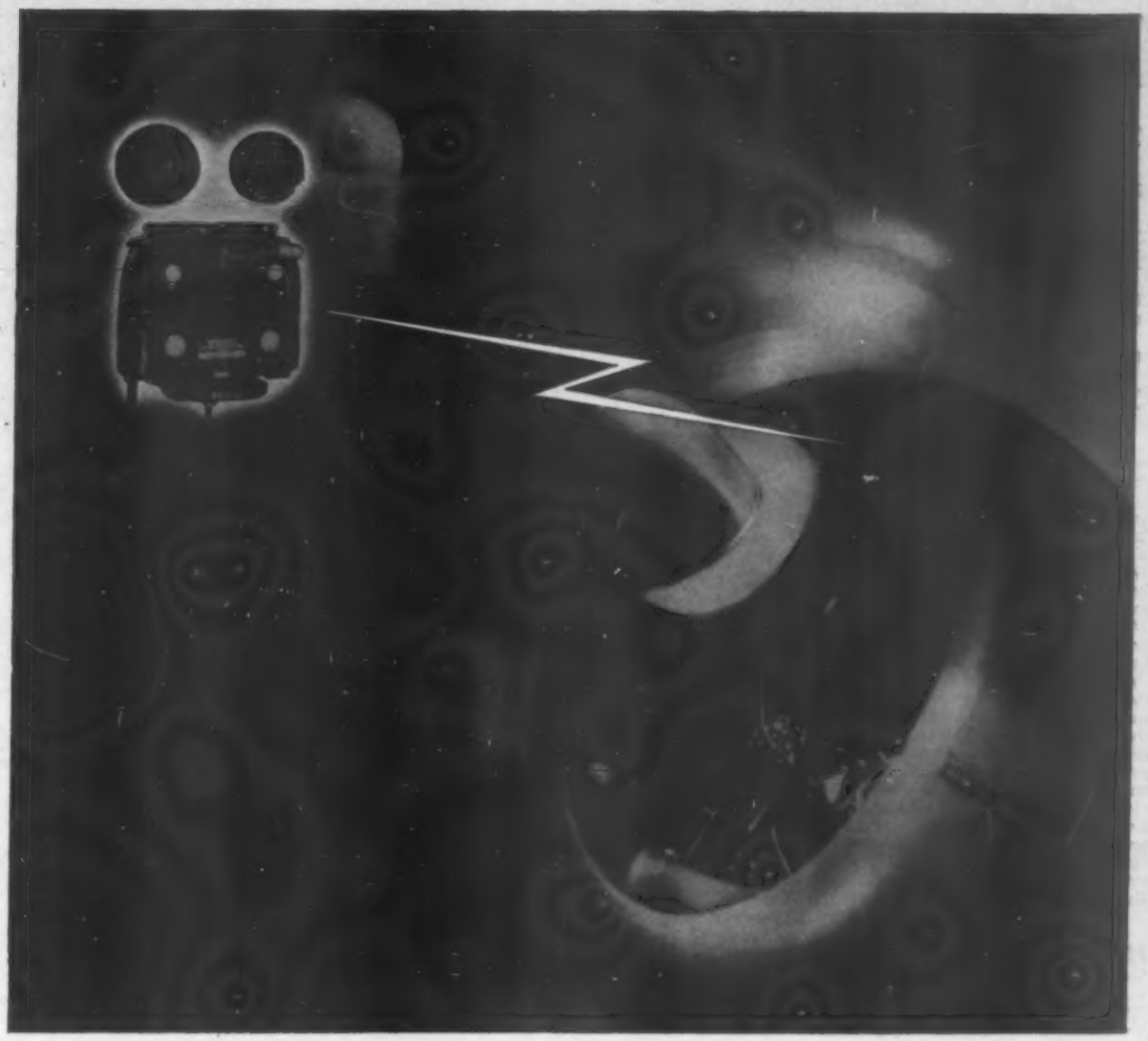
Net profit from these operations totaled $584,772.59, compared with $349,932.24 a year earlier. Provision for Federal income and excess profits taxes (Less postwar refund credit) amounted to $1,375,000 against $198,200.

Of gross operating revenues of $6,973,648.19, passenger accounted for $5,242,311.98, mail, $985,454.44, express, $585,085.35, and other, $160,796.42. Significant difference as compared with 1942's first quarter was in mail, which for that period amounted to $1,092,998.74. But express was only $242,609.75 at that time.

Despite reduction in equipment, revenue passenger miles were well maintained in this quarter, totaling 93,950,370 as contrasted with 97,874,503 in 1942. Of possible payload, "over 84% was utilized in March, 1943."

WAL Gets New Building

Ground has been broken for a $50,000 engine over-haul building at Western Air Lines' terminal in Los Angeles, Cal., the company has reported. Main division of the building will house a monorail capable of handling 20 giant transport engines. For the first time in the history of the airline, a woman's lounge will be included in a maintenance building, the announcement said.



Nerve Center of the "Thunderbolt" Engine!

TWO THOUSAND horsepower of stratosphere terror is the famous P-47. And what keeps its super power plant roaring, each of its 18 cylinders firing, timed to the split second, is "BENDIX-SCINTILLA" Aircraft Ignition.

Many a knotty ignition problem has high altitude flight presented. And each, whether in the realm of electricity or electronics, has been solved by Scintilla engineers. That is one reason why the "Thunderbolt," and other American high-altitude aircraft, are speeding faster and climbing ever higher to out-fly and out-fight the Axis.

Today, precision-built "BENDIX-SCINTILLA" Aircraft Magnetos, Harnesses and Switches . . . members of the famed "Invisible Crew" . . . constitute a vital contribution to military aviation. Tomorrow, engineered to the needs of giant skyliners and modest flivver planes, they will prove equally valuable to the progress of peacetime flight.

"BENDIX-SCINTILLA" Aircraft Magnetos, Harnesses and Switches are vital members of "The Invisible Crew"—precision equipment which 25 Bendix plants from coast to coast are speeding to our fighting crews on world battle fronts.

THE INVISIBLE CREW
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AVIATION CORPORATION

SCINTILLA MAGNETO DIVISION BENDIX SCINTILLA THE WORLD'S FINEST AIRCRAFT IGNITION

Boston—N. Y. Routes Sought by Colonial

Colonial Airlines, Inc., has filed an application with the Civil aeronautics Board proposing airline service between New York and Boston by any one or all of seven routes. The proposed service would give Boston and certain intermediate points connection with New York and radiating airlines at La Guardia Field.

The routes desired are between:

1. New York-Newark and Boston-Bedford.
2. New York-Newark and Boston-Bedford via Hartford, Conn.
3. New York-Newark and Boston-Bedford via Bridgeport, Conn.; New Haven, Conn.; Hartford, Conn.; Springfield, Mass.; and Providence, R. I.
4. New York-Newark and Boston-Bedford via Stamford, Conn.; Waterbury, Conn.; and Worcester, Mass.
5. New York-Newark and Boston-Bedford via Stamford, Conn.; New London, Conn.; Newport, R. I.; and New Bedford, Mass.
6. New York-Newark and Boston-Bedford via Southampton, Long Island; Newport, R. I.; and New Bedford, Mass.
7. New York-Newark and Boston-Bedford via Southampton, Long Island; New London, Conn.; and Providence, R. I.

Colonial's application specified that if the Board found that air service is required in the public interest through any point between New York-Newark and Boston-Bedford not named in the application, the company would furnish such service.

Colonial also has filed application for a route from Ottawa, Canada, to Binghamton, N. Y., to Washington, D. C. via Harrisburg, Pa. It is intended that this route will be in addition to the one from LaGuardia Field, N. Y., to Massena, N. Y.

Budd Sees Continuous Rise in Air Transport

Anticipating substantial activity and continued growth in aviation as one of the basic transportation commodities, Edward G. Budd, president, Edward G. Budd Manufacturing Co., Philadelphia, Pa., has revealed company has a backlog of $164,000,000 in war orders.

"Prospects for postwar business in the basic field of transportation indicates that it will be kept busy for years after the war ends," Budd asserted. "Aviation is not new with us," he pointed out. "We built our first airplane of stainless steel back in 1933 and operated it many thousands of miles both in this country and abroad. We have been building stainless steel airplane parts for some years and now the business has grown to be a very important part of our war-production program. We are confident this will carry over after the war into the commercial field."

"The global aspect of our business after the war should be understood," he said. "We deal in transportation primarily, whether we build automobile and motor truck bodies and parts, railway passenger cars, airplanes, marine structures or highway freight trailers. When the war ends transportation will be the basic commodity of which the world will have most need."

Actions of the Civil Aeronautics Board

Order No. 2231, *Apr.* 16, 1943: Temporarily exempted each carrier certificated to render scheduled air transportation service to and from Omaha, Neb., from provisions of sections 238.3 and 238.5 of the Economic Regulations, and permitting use of Offut Field because of flood conditions affecting use of the Omaha Municipal Airport.

Order No. 2232, *Apr.* 17, 1943: Approved the holding by Howard B. Dean of concurrent positions as assistant vice president in Pan American Airways and Pan American Airways Corp.

Order No. 2233, *Apr.* 19, 1943: Rescinded Orders No. 1811 and 1756 which authorized temporary suspension of service on Mid-Continent Airlines' route 48 between Minneapolis-St. Paul, Minn., and St. Louis, Mo.

Order No. 2234, *Apr.* 20, 1943: Rescinded Order No. 2098, issued Jan. 5, 1943, relative to Pan American Airways' service between Seattle, Wash., Juneau, Alaska, and Whitehorse, Canada.

Order No. 2235, *Apr.* 22, 1943: In the case of Eastern Air Lines' suspension of service at Baton Rouge, La., authorized temporarily in Order No. 2096, dated Jan. 4, 1943, determined that authorization would expire May 15, 1943.

Order No. 2236, *Apr.* 24, 1943: Authorized George S. Schwamm, doing business as Petersburg Air Service, to suspend service temporarily on regular routes in Alaska between the terminal point Petersburg, the intermediate point Wrangell, and the terminal point Ketchikan; and between the terminal point Petersburg, and the terminal point Juneau; and on his irregular route between all points in the First Judicial Division of the Territory of Alaska.

Order No. 2237, *Apr.* 24, 1943: Authorized Pan American Airways to suspend service until Oct 1, 1943 at Hot Springs, Kokrines, Ruby, Koyukuk, Nulato, and Golovin, on its route between the terminal point Fairbanks, Alaska, and the terminal point Nome, Alaska; and at Medfra, Takotna, Ophir, Sleitmut, Crooked Creek, Napamute, Kalskag, and Akiak, on its route between the terminal point Fairbanks, Alaska and the terminal point Bethel, Alaska.

Order No. 2238, *Apr.* 26, 1943: Approved the holding by Edward G. Smith of the position of director and/or director (alternate) of Railway Express Agency, Inc., and in a group of transport and terminal companies.

Order No. 2239, *Apr.* 27, 1943: Approved the holding by John W. Hanes of interlocking positions with Pan American Airways, Inc., Pan American Airways Corp., Missouri-Kansas-Texas Railroad Co., Republic Aviation Corp. and United States Lines Co.

Order No. 2240, *April* 27, 1943: Similarly, approved the holding by Paul R. Scott of interlocking relationships in National Airlines, Inc., The Miami Beach Railroad Co., Florida Associates, Mississippi River Fuel Corp., and Intercontinent Aircraft Corp.

Order No. 2241, *Apr.* 27, 1943: In the cases of Western Air Lines, National Airlines, Delta Air Corp., Chicago and Southern Air Lines, Inc., Braniff Airways, Inc., Northwest Airlines, Inc., regarding mail rates on certain of their routes, and of a group of these and other air lines regarding passenger fares, directed consolidations of dockets for more convenient hearings.

Order No. 2242, *Apr.* 27, 1943: Approved agreement between Pan American Airways and Panair do Brasil, S. A. regarding the furnishing of certain services and facilities to the Republic of Brazil by Panair do Brasil, S. A., and outside of Brazil by Pan Am.

Order No. 2243, *Apr.* 27, 1943: Likewise, approved agreement between Pan American Airways and Cia Nacional Cubana de Aviacion, S. A., relating to furnishing of certain services and facilities in the Republic of Cuba by Cia Nacional Cubana de Aviacion, S. A., and outside of Cuba by Pan Am.

Order No. 2244, *Apr.* 27, 1943: In the same way, approved agreement between Pan American Airways and Compania Mexicana de Aviacion, S. A., relating to furnishing services and facilities in the Republic of Mexico by Compania Mexicana de Aviacion, S. A., and outside of that country by Pan Am.

Order No. 2245, *Apr.* 28, 1943: Revoked student pilot certificate No. S-317533, held by Andy Covic, for several alleged infractions of the Civil Air Regulations.

Order No. 2246, *Apr.* 29, 1943: Amended Order No. 609-595, which corrects number of student pilot certificate to No. 457582, held by William F. Gordon, number in error being No. 256574.

Order No. 2247, *Apr.* 29, 1943, Rescinded Order No. 1762, dated May 26, 1942, insofar as it authorized temporary suspension of United Air Lines' service to and from San Diego, Cal., as well as Order No. 1815, issued June 25, 1942, effective May 1, 1943.

Order No. 2248, *Apr.* 30, 1943: Suspended, for 90 days, private pilot certificate No. 20733-40, held by Tom H. Miller, date of suspension to run from Nov. 23, 1942, for allegedly piloting aircraft "within the limits of the air space reservation at Washington, D. C. . . ."

Order No. 2249, *May* 3, 1943: Suspended for six months student pilot certificate No. 45163, held by Lawrence F. Neil, for allegedly making "false and inaccurate entries of flight time in his pilot logbook," and for another claimed violation of the Regulations.

Order No. 2250, *May* 1, 1943: Amended Order No. 2205, dated Mar. 29, 1943, by extending it to July 27, 1943, because of airport condition at Watertown, S. D., on Mid-Continent Airlines' route 26.

Order No. 2251, *May* 1, 1943: Denied motion to consolidate applications and issue temporary certificate to Northwest Airlines, Inc., contained in Dockets Nos. 547 and 679, concerning temporary and/or permanent certificates on a domestic and a territorial route.

Order No. 2252, *Apr.* 7, 1943: Granted temporary foreign air carrier permits for six months unless extended in the Caribbean area to British West Indian Airways (Lowell Yerex), to TACA, S.A., to Royal Dutch Air Lines (KLM), Expreso Aereo Inter-Americano, S.A., and to Compania Nacional Cubana de Aviacion, S.A., but denied applications of Eastern Air Lines, and National Airlines.

Order No. 2253, *May* 4, 1943: Authorized United Air Lines to serve Eugene, Ore., through the use of Eugene airport, service to be inaugurated May 1, 1943.

Order No. 2254, *May* 4, 1943: Authorized United Air Lines to inaugurate as of May 1, 1943, non-stop service between Des Moines, Iowa and North Platte, Nebr., on its Route No. 1.

Order No. 2255, *May* 5, 1943: In the case of Howard Grastorf, holder of pilot certificate No. 238702, directed that if Grastorf before June 15, 1943 is issued commercial pilot certificate and flight instructor rating, certificate shall be limited for six months from date of issuance to piloting aircraft while receiving or giving instruction in the War Training Service, making check flights when accompanied by instructors of the Civil Aeronautics Administration, or while on military duty; and further directs that if Grastorf does not receive commercial pilot certificate and flight instructor rating on or before June 15, 1943, private pilot certificate shall be suspended for six months, all because of an alleged inaccurate entry in his flight log book.

Immediate Air Transport Accord With U. S. Urged by British Group

The British and U. S. should reach an understanding "without delay" on postwar Empire transport, according to recommendations made recently by the British Independent Committee on the Future of Civil Aviation.

The committee is headed by Capt. A. G. Lamplugh, and none of its members is actively engaged either in the air transport industry or in airframe manufacture. Several members are accessory manufacturers. The committee was formed privately in September, 1942, when a government committee "was understood to have discontinued its labors."

Following a U. S.-British understanding, other Allied Nations should be approached with a view to obtaining their agreement and adherence to the principles of the understanding, the report stated.

The United Kingdom and the Dominions "might make a joint declaration of policy with a view to giving a wise lead to the world before further international discussion took place," it continued. "This declaration might be prefaced by stating that the British Empire comprises about a quarter of the world's surface, that no two territories comprised in it are separated by more than 2,000 miles and consequently it includes convenient stages for the operation of airlines over most of the globe.

"It might be followed by a declaration that air bases in those territories would be made available to all for the operation of international air services on a reciprocal basis, subject only to proper safeguards of sovereign rights and against uncommercial (subsidized) competition."

Expressing the belief that approximately 1,000 civil aircraft will be required for operation of trunk routes throughout the British Empire in the postwar period, the report warns that unless the British government takes "immediate and effective action" on design and production of civil planes the British will be compelled to use U. S. equipment for several years after the war. "In view of the fact that the next generation of heavy bombers can be looked for from the United States . . . (and that air transport for war purposes must play a large part in the Pacific war area), a small percentage of British design effort should now be diverted to design of service transport aircraft."

A complete summary of the conclusions reached by the committee follows:

1. "Air Transport is essential for maintenance of the position of a State as a first-class power. This is particularly so when such a power has colonial possessions, with which fast means of communication are vital.

"The need is paramount for the British Empire, with Dominions, Colonies and Dependencies of vast areas spread all over the world. No two of these are more than about 2,000 miles apart, and thus constitute convenient stages for air line operation.

2. "State provision is necessary for maintenance of airports and for systems of navigational control on all air routes.

"International agreement is essential to set a high limit for such subsidy as may be necessary. Unless this is done internationally, uneconomic and cut-throat competition is certain to ensue.

"Subsidies should not normally be necessary if:

(a) Services are operated at economic speeds;

(b) Aircraft are not written off as obsolete before the end of their true commercial life;

(c) Proper remuneration is paid for the carriage of mails (taking into account the value of speed), passengers and freight, and

(d) Uncommercial subsidised competition is not encountered.

"Very long stages over oceans make strictly commercial operation more difficult. On such routes the value of the service rendered—in the form of speed and saving of time—justifies higher rates of remuneration, especially for the carriage of mails.

3. "Unless the British Government takes immediate and effective action leading to the design and production of a sufficient number of commercial aircraft as soon as possible, British air lines may be compelled to operate mainly with American aircraft for some years after the war. The prestige inherent in using British designed and built aircraft on British air routes needs no emphasis. Conversely there is a great loss of prestige in the enforced operation of foreign aircraft.

4. "Civil Aviation needs a research establishment in which should be centralized modern and progressive information available to constructors of aircraft, engines and equipment, and to aircraft operators.

5. "Only in exceptional circumstances should more than one British operating organization be given an individual subsidy on any one route or stage. The fullest cooperation of the Dominions should be sought, with a view to their acquiring rights and obligations over the routes and lines in which they are specially interested.

6. "Each major trunk route should be operated by a separate administrative and executive organization ('chosen instrument').

7. "For all air traffic, and indeed for all civil and military aviation, in peacetime, strict navigational control is essential. For international traffic the control must be organized upon an international basis.

8. "Air Transport (and preferably all Civil Aviation) should be removed from the control of a Ministry which is concerned primarily with Service matters. If this is not practicable at present, because of the War and the constitution of the RAF Air Transport Command, it should be effected as soon as possible after the war. In the meanwhile effective control should be exercised by a separate Civil Air Council co-equal with the present Military Air Council. The ultimate objective should be that Air Transport be developed by private enterprise along lines similar to those of the Mercantile Marine.

9. "Air Transport should be subject only to sufficient Governmental control to ensure efficiency and safety—in the interests of the public and international relations and facilities.

10. "The fullest possible scope and freedom should be afforded to constructors of aircraft, engines and equipment in matters of design, with a view to the greatest benefit being derived from the wealth of experience, knowledge and enterprise which is at the disposal of the British Aircraft Industry.

11. "Plans and schemes for the training of personnel in all branches of Civil Aviation should be prepared, and amenities provided. The first essential of satisfactory Air Transport operation is efficient, loyal and enthusiastic personnel in all branches of the organization.

12. "International military control of Air Transport may prevail for some time after the war, and this may involve, or be combined with, the operation of international traffic under a military regime.

13. "The eventual assumption of the administrative control of international air traffic by an international body may be visualized.

14. "The main essentials to the proper development of Air Transport for the benefit of civilization are:

(i) a genuine spirit of cooperation and conciliation on an international basis.

(ii) a loyal determination to pursue a course which is right and just rather than one which is diplomatic or expedient, and

(iii) an observance of the spirit rather than the letter of international conventions and agreements.

"International conventions and agreements must be ratified by all states of goodwill to record general principles and to ensure unification of regulations concerning technical matters."

Members of the committee in addition to Capt. Lamplugh are: A. J. A. Wallace Barr, W. C. Devereux, G. H. Dowty, L. L. Irvin, Alonzo Limb, H. E. Nicholls, O. E. Simmonds and P. G. Masefield, secretary.

PCA Profit $356,000 for 1942 Despite Transition

Pennsylvania-Central Airlines shows an operating profit of $356,228 for 1942 despite its wartime transition, its annual report revealed. Net income, after income taxes from all sources, amounted to $408,055 as compared with $127,284 for 1941. The ratio of current assets to current liabilities at the end of 1942 was 2.7 to 1 as compared to 2.2 to 1 at the close of 1941, the report said.

PCA's growth from an operation spanning 127 miles in 1927 to its present schedule of 3,500 miles, is reflected in the report. In its military operations alone, PCA flew more than 2,000,000 miles in the last nine months of 1942. Its personnel expanded from 293 employes in 1938 to 2,000 as of April 1, 1943.

Mid-Continent Resumes Flights

Daily round-trip flights between Minneapolis-St. Paul and St. Louis by way of Rochester and Des Moines have been resumed by Mid-Continent Airlines with government approval, after being discontinued for several months in accordance with military requirements.

5 Lines to Reduce Passenger, Cargo Rates; CAB Drops Probe

Five airlines will reduce passenger and express rates by July 15, the Civil Aeronautics Board revealed June 15 in announcing that it was dismissing the passenger fare investigations involving those five companies. Investigation of six other carriers will continue, however.

American Airlines, United, TWA and Eastern will reduce passenger tariffs by 7.6% or more, while Western's will drop 6%, the Board said. CAB's show cause order had mentioned a 10% reduction.

These airlines have also undertaken "to effect a reduction of approximately 12.5% of the existing basic charges for the transportation of air express without, however, affecting any reduction in present minimum charge of $1.00 or charges for excess valuation," the Board said.

In a strong dissent, CAB member Harllee Branch asserted that the Board was "compromising its show cause order." He urged an immediate investigation covering not only passenger fares but also mail and express.

Branch's dissent said: "If my colleagues were by order to institute at the present time a general proceeding for the purpose of investigating the rates of all classes of air transportation service, I would be able to concur in the present action . . . The pressing character of our rate problems has advanced them beyond the stage where it is any longer necessary to study the desirability of instituting a general rate proceeding. In my opinion, therefore, any act of the Board short of an order instituting a comprehensive proceeding for the purpose of investigating the rates for all classes of air transportation service—mail, passenger and express—would be a temporizing action which would fail to meet our public obligations in the present situation.

"Only pursuant to the greater public benefits obtainable from a comprehensive general rate proceeding would I feel justified in dismissing the present passenger fare proceeding as to those five carriers without a hearing to determine whether their failure to comply substantially with the Board's order to show cause is warranted. Without some such justification, the Board, by majority action, appears to be compromising its show cause order—virtually within a framework of bargaining which departs widely from the safeguards, to the public interest, carriers and Board alike, of normal administrative rate adjustments—by accepting, forthwith, whatever reductions in passenger fares each of the five carriers has chosen to offer."

Branch recalled that he had dissented in each case where the Board had established a .3 mill per pound-mile mail rate, on the grounds that elements of subsidy, which in his opinion are unneeded, are contained in such rate. It is impossible, he asserted, to establish fair and reasonable service mail rates without some method of allocating the cost and investment of the individual carrier among its various transportation services. "The development of a proper method of allocation is a major duty of the Board which must be fulfilled before any sound basis of establishing mail, passenger or express rates can be reached," he said. "Since it is clear that the Board will never be able to properly discharge this duty if its rate problems are approached in disjointed and piecemeal fashion, a comprehensive formal proceeding for the purpose of simultaneous investigation of all air transportation rates—wherein allocation and similar problems would receive adequate attention—is imperative."

Branch urged that the Board must now lay the bases for postwar air express and cargo rate structures. "Although minor reductions in express rates are being proposed voluntarily by some of the carriers, there appears to be no question that the rates of this air transportation service are in need of immediate examination," he said. Elimination by CAB of restrictive provisions in the Railway Express Agency contracts "now has paved the way for establishing air express and cargo rate structures which will constructively promote the tremendous future demand for air express and air cargo which may be anticipated if properly developed by a far-sighted policy." Branch also stated that "giving due consideration to the carrier's postwar requirements, it seems necessary, in my opinion, when the Board comes to establishing 'fair and reasonable' passenger fares to act cautiously until the extent of the present unusual traffic and operating conditions resulting from a wartime economy can be more accurately foreseen."

Seminar: Among those attending American Airlines' management seminar, recently in New York City, were, left to right—F. de Wolfe Sanger, supervisor of training; C. F. Weaver, Western superintendent; R. W. King, Central superintendent; D. L. Urquhart, superintendent of American Airlines de Mexico, T. P. Gould, manager of reservations and ticket offices; W. N. Bump, New England traffic manager; L. J. Boylan, Eastern superintendent; D. W. Campbell, Southern superintendent; G. R. Scott, New England superintendent; and Miss Kay Murphy, secretary.

WAL Protests Board Policy on Small Lines

Western Air Lines has asked the Civil Aeronautics Board to reconsider its decision granting TWA permission to operate between Los Angeles and San Francisco on its transcontinental route while at the same time denying a similar route for WAL.

"If we understand the attitude of the Board correctly, its policy is definitely destructive of the smaller regional lines," the petition said. "In the decision in the San Diego-Phoenix case it declares the need for the protection of Western Air as a local carrier, for it says, 'The competition between carriers required by sec. 2 of the Act cannot be preserved if the economic position of the smaller carriers is permitted to deteriorate in relationship to the larger air carriers.'

"But it decides in that case that 'these considerations must give way to more compelling ones,' these being 'the primary benefit to the public' for the improvement of the long-haul service between San Diego and the east, the Board pointing out that there was a 'lack of substantial local traffic' which would justify giving the line to Western. In other words, Western is denied the route where the traffic is primarily *through* traffic.

"But in the instant case, where the traffic between Los Angeles and San Francisco is 90% *local*, which Western can admittedly serve better than TWA, and where the *long-haul* traffic carried by TWA is small and admittedly not sufficient to make the through operation economical, the Board also awards the service to TWA and forces the deterioration of Western's economic position.

"Thus, under the Board's reasoning Western always stands to lose: where there is a great amount of local traffic the route is awarded to the transcontinental carrier in order to make economical the service of a small residue of transcontinental traffic, otherwise uneconomical. But where there is no local traffic the route is denied to Western on the ground that Western cannot best serve the through traffic.

"This reasoning means the starvation of the regional lines."

AA's Load Factor Increase Made Despite Mileage Cuts

Although handicapped by equipment difficulties, American Airlines had a load factor of 88.8% in April, contrasted with 79.8% in April of 1942. This record was made despite decrease in revenue passenger miles from 42,670,535 in April, 1942 to 37,028,184 in April this year.

Air express transported during April totaled 1,779,372 lbs. a 124.7% increase over the 791,850 lbs. figure for the same month a year previously. Air mail pounds likewise increased from 1,044,444 lbs. in the 1942 month to 1,996,352 lbs. in April, 1943, a gain of 91.1%.

During the first four months of 1943, 5,865,372 lbs. of express were transported, and 2,905,998,825 pound miles were flown, compared with 2,783,761 lbs. and 1,389,316,684 pound miles in the like period of 1942.

HELPING HANDS ARE FIGHTING HANDS!

Trigger fingers of fighting men depend on the willing, efficient production fingers of American industry. That is why American industry at its best means talent and hard work as well as plants and tools. Men and women of Solar believe in that definition. They are setting an example of industrious production for Victory making untold numbers of "anti-monoxide" exhaust manifolds for our fighting planes.

ARMY E NAVY

SOLAR

EXHAUST SYSTEMS—

SOLAR AIRCRAFT COMPANY • SAN DIEGO, CALIFORNIA

Airline Personnel

Mutchler Lewis

Traffic and Sales

Robert H. Herrnstein succeeds **Donald A. Duff** as acting general traffic manager for Northeast Airlines. **Warren H. Smith**, formerly superintendent of stations, is named assistant to Herrnstein, and **Parker G. Milliken** is now superintendent of all commercial and Atlantic division stations of NEA.

Operations

Clifford Mutchler is appointed manager of TWA's Intercontinental Division.

Charles B. Wilder, recently with the line's military cargo division, is appointed assistant superintendent of stations of Delta Air Lines, to work under the supervision of **John L. Sutton**, superintendent of stations and passenger service.

Miscellaneous

E. J. Foley is appointed an assistant to **William Littlewood**, vice-president-engineering, American Airlines, and will also act as assistant to the chairman of AA's planning committee. **Arthur D. Lewis**, AA's research analyst in the department of economic planning, will instruct a course in commercial air transportation at New York University.

Harold R. Porter will head a new engineering section for TWA which will be concerned with aviation fuel and research, heating, ventilating, refrigeration, turbo supercharging and other special projects.

Kenneth E. Allen, formerly with Associated Press, Albuquerque, is appointed director of public relations for Continental Air Lines.

Allen Porter

Airline Announcers Use Foreign Tongue

"Atención por favor!
El avión numero veinte mueve de las American Airlines que sale a las ocho y quince para Monterrey y la Ciudad de Mexico se encuentra listo. La puerta numero seis conduce al andén. Se suplica a loz pasajeros subir a bordo."

Should you happen to hear this announcement coming over the public address system the next time you're at the National Airport and perhaps wonder just what is happening, or what the announcement means, here is a translation as given by American Airlines.

"Attention please! American Airlines flight 29 which leaves at 8:15 for Monterrey and Mexico City is now loading at gate 6. Will the passengers please board their plane".

Origination of the Spanish announcements on the departure of American transcontinental flights came as a result of the efforts on the part of airline officials who were seeking means to help the Mexican passengers whose knowledge of English was somewhat limited. By so doing the airline provides additional service to the passenger and at the same time prevents any delay in the departure of these flights.

Two of its Washington personnel, Gloria Raye and Blanche Boerner, speak Spanish fluently and to them went the assignment of not only the announcements, but also of acting as special ticket agents for Mexican passengers.

Now, whenever any Mexican passengers arrive at the ticket counter, they are directed to a special section of the counter, set aside for them. The girls on duty check the passenger in and inform him that the departure of the plane will be announced in Spanish, putting the passenger at ease.

A significant fact concerning these announcements is, that they may be considered one of the forerunners of post-war aviation. When the present conflict ends and commercial planes take to the skies, carrying passengers to capitals the world over, announcements in foreign languages will be part of airline procedure for the convenience of the traveling public of tomorrow, it is anticipated.

D. D. Walker Leaves C & S

D. D. Walker has announced his resignation July 1 as vice president in charge of traffic of Chicago & Southern Air Lines to become vice president in charge of operations of the training division of the Aviation Credit Corp. at Kirksville, Mo., in which he has a substantial financial interest. Reports of Walker's disposition of his stock holdings in C & S have been current in industry circles for some weeks. He joined C & S eight and one-half years ago. Ralph Heininger assumes his traffic duties, and Bruce Braun, v.p. of operations, assumes military transport and training work handled by Walker.

LaGuardia Air Express Up

Weight of air express shipments handled through LaGuardia Field in 1943's first quarter was 52.5% greater than in the like period of 1942, according to Air Express Division of Railway Express Agency, New York, N. Y.

In Spanish: Miss Gloria Raye, ticket agent and announcer for American Airlines at Washington National airport, furthers international commerce by making announcements to Spanish passengers in the Spanish language. Note calendar also in the Spanish motif.

Putnam Opposes One International Airline Operator

Opposition to the operation of international air routes by a single U. S. carrier has been expressed by Carlton Putnam, president of Chicago & Southern Air Lines.

Speaking on June 25 in Washington at a banquet sponsored by the National Aeronautic Association in honor of C&S's 10th anniversary, Putnam said ". . . you talk about one great transportation company in the international field, because you say we need a single, united front in competing with other nations for foreign trade. Other nations, you say, go into new territory represented by a single airline, and it makes a bad impression if we follow along with two or three in competition with one another. It's harder for the State Dept. It confuses the picture.

"Now undoubtedly in time of war, or where you have a very delicate political issue, that may be true. But in time of peace, as a principal for normal conditions, may we be delivered from such doctrine. And why? Just because, again, that beautiful symmertrical pattern, that awesome, single system . . . that system that is so easy for the State Dept. to work with—that system will *not* buy a generation of hope in the eyes of American youth, it will *not* buy a ferment of diversified executive thinking and enterprise, it will *not* keep alive the ideal of wide American chance."

Putnam warned that if railroads and steamship companies are let into the airline business "you have not only the danger of old line transportation attitudes dominating and subordinating, by their very size and financial power, the new medium that others have pioneered, but you narrow by so much the diversity of personal opportunity."

"We feed these babies with a measuring spoon!"

THE modern aircraft engine has the power to move a freight train. Yet it weighs less than a pair of ordinary car wheels. The secret of its tremendous output without the need for massive parts lies in large measure in microscopic balance, high speed, and high efficiency, together with the miracle of modern alloys. Its power is smooth and tremendous when under instrument control . . . but is gone in a flash—along with a plane and a pilot, perhaps—if it is inepty handled. Kollsman engine instruments—tachometers, manifold pressure gages, thermometers—are what give the pilot control over the torrent of power which propels him through the skies. Upon their precision and reliability has been built not a little of aviation's current advancement. Their role in tomorrow's progress is an even greater one.

WHAT TOMORROW'S AIRCRAFT ENGINES *will look like or how they will perform, we don't know yet. But we do know that instruments will play a large part in expanding their scope and usefulness far beyond anything we know today. Kollsman engineers are constantly developing new and better aircraft instruments which will help widen and extend tomorrow's skyways for a new era in aviation.*

THE KOLLSMAN ELECTRIC DUAL TACHOMETER AND SYNCHROSCOPE *not only registers engine revolutions in twin-engined planes, but directly compares the speed of the engines to permit perfect synchronization. It is electrically operated, with generators on the engines sending power impulses by wire to the indicators on the instrument panel.*

KOLLSMAN AIRCRAFT INSTRUMENTS

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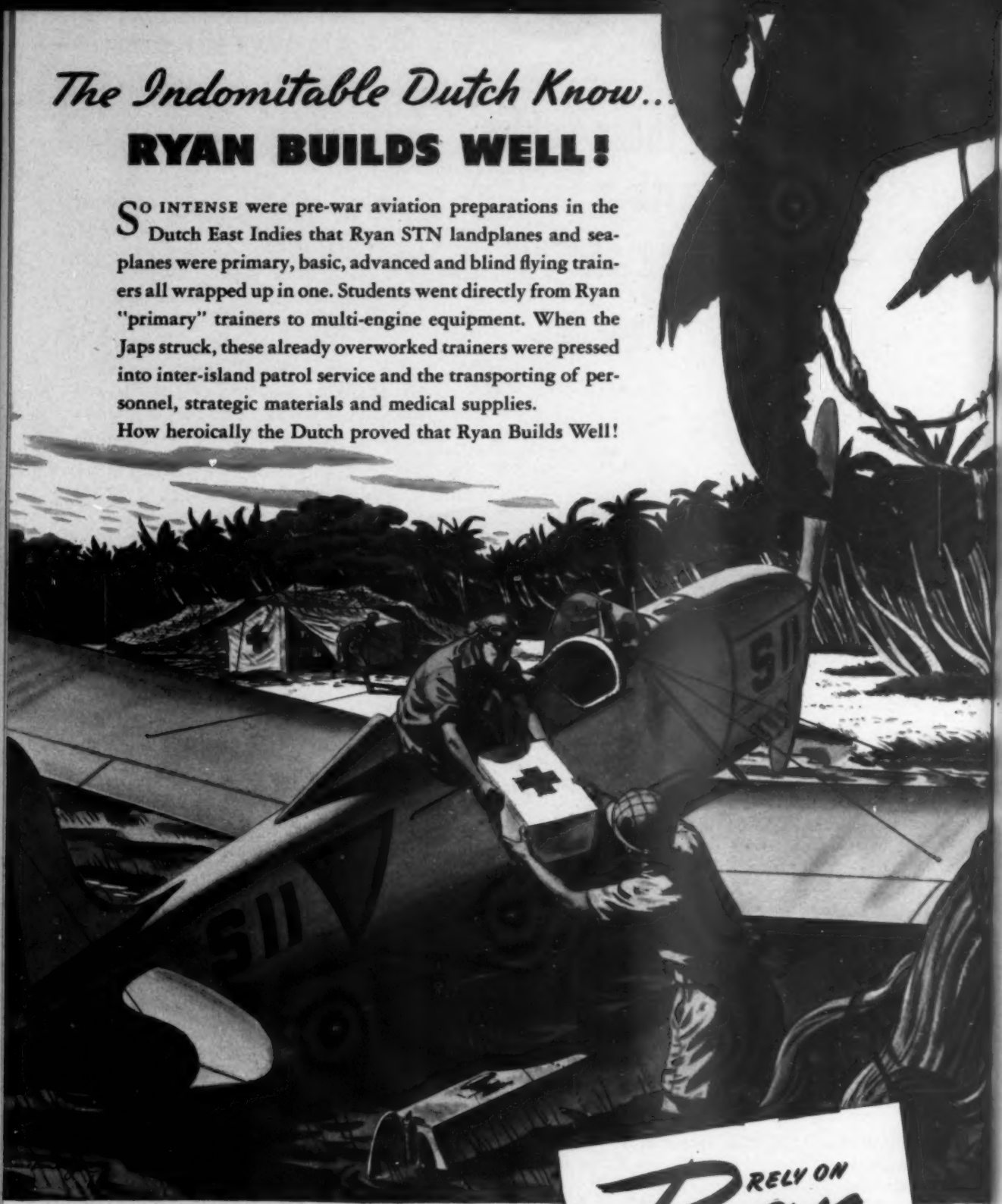
The Indomitable Dutch Know...

RYAN BUILDS WELL!

SO INTENSE were pre-war aviation preparations in the Dutch East Indies that Ryan STN landplanes and seaplanes were primary, basic, advanced and blind flying trainers all wrapped up in one. Students went directly from Ryan "primary" trainers to multi-engine equipment. When the Japs struck, these already overworked trainers were pressed into inter-island patrol service and the transporting of personnel, strategic materials and medical supplies.

How heroically the Dutch proved that Ryan Builds Well!



Your War Bonds Can Buy Your Share of the Air Age

TODAY the extreme demands of war are proving the quality of Ryan airplanes, manifolds and major sub-assemblies. TOMORROW, when this same quality will be built into Ryan products for a friendly world, look for wondrous results! Remember, in peace as in war, Ryan Builds Well.

RELY ON Ryan

PIONEER AIRCRAFT MANUFACTURER

RYAN AERONAUTICAL COMPANY, San Diego, Calif. — **Member, National Aircraft War Production Council, Inc.**

Ryan Products: Army PT-22s, Navy NR-1s, Army PT-25s, Major Sub-Assemblies and Exhaust Manifold Systems for America's Most Distinguished Aircraft

Bus, Truck Lines Reveal Plans

(Continued from page 15)

ville, Ind.; Canadian border-New York-Washington Miami; Springfield, Ill., to Vicksburg, Miss.; Toledo-Louisville; Birmingham-Lafayette, La.; Toledo-Savannah; Canadian border-Scranton-Baltimore-Norfolk; Winchester, Va., to Charleston, S. C.; Knoxville-Jacksonville; Canadian border-Jackson, Miss.; Grand Rapids-New Orleans; Canadian border-New York-Norfolk; Raleigh-Waycross, Ga.; Boston-Cincinnati; Canadian border-State College, Pa.; Pittsfield, Mass., to New York; Cleveland-Pittsburgh; Philadelphia-Toledo; Canadian border-Buffalo-Philadelphia; Boston-New Haven; Boston-New Haven; Springfield, Ill., to Corinth, Miss.; Raleigh-Augusta; Raleigh-Winston-Salem; Norfolk-Bristol; Florence-Atlanta; Greenville-Georgetown, S. C.; Washington-Cleveland; Pittsburgh-Charleston, W. Va.; Pittsburgh-Columbus; St. Louis-Evansville; Kansas City-Corpus Christi; Canadian border-Billings.

In addition, the company asks Canadian border-Billings; Kansas City-Texarkana; Duluth-Fairmont, Minn.; Kansas City-Miami, Okla.; Eau Claire-Brookings, S. D.; Tracy, Minn. to Sioux City; Bemidji, Minn., to St. Cloud; Marquette-Milwaukee; Calumet-Escanaba; Mt. Pleasant, Tex., to Waco; Portland-San Francisco-Los Angeles-Mexican border; Medford-Weed; Portland-San Francisco-Long Beach-San Diego, and Williams-Phoenix.

The company, which now operates 830,000 motor bus miles daily, has set up a separate division known as the Greyhound Airline Division, which will be staffed by officers and personnel "experienced in air as well as motorbus transportation," the application revealed.

The company proposes to use helicopters "or similar aircraft" with passenger capacity for at least seven persons. It is negotiating with manufacturers for construction of such a plane "of a design, capacity and power, specified in joint specifications now being jointly developed by the engineers of applicant and the manufacturer companies."

At least one round trip daily would be operated over the routes. "These air schedules will be so coordinated with the bus schedules of applicant and its subsidiaries and connecting bus lines that every point on such bus lines will be provided with a joint through air-highway service, conveniently located thereto," the application explained.

"Arrangements will also be made in case of unfavorable weather or other reasons it is impossible to initiate or complete an air schedule, for special bus schedules to be operated for the purpose of promptly transporting air passengers who otherwise would be delayed. Similarly, arrangements will be made in case there is a stoppage in bus operations on any of the routes, for additional air transportation to be provided for the continuation of the passengers' journey by air.

"Applicant also proposes to serve airports on main airways along each of its proposed routes to the end that passengers originated by it and desiring through long-distance air transportation may be fed to other air carriers and similarly returned to their homes in the smaller cities and towns along applicant's bus routes following such an air journey."

The routes will not compete substantially with any present air carriers, Greyhound claimed.

The company pointed out that it now has hundreds of trained mechanics on leave in the Army and Navy, servicing airplanes, and that they will be available after the war. Similarly, many employes are now military pilots who will be available.

Greyhound hinted that it may be able to secure two or three helicopters in the near future, and asked permission to operate them between Detroit and Flint, Mich.

Keeshin Air Freight Inc., a wholly-owned subsidiary of Keeshin Freight Lines, asks permission to transport freight (1) between 79 basic points all within a territory lying between Minneapolis-St. Paul, Des Moines and St. Louis-East St. Louis on the west, Eau Claire, Milwaukee, Muskegon, Detroit, Rochester, Albany and Boston on the north, Louisville, Cincinnati, Columbus and Washington on the south and the Atlantic coast on the east; (2) between said basic points, on the one hand, and 127 other principal points in the U. S. on the other hand, through 16 specific gateway points as follows: Boston, New York, Philadelphia, Camden, Baltimore, Washington, Cleveland, Columbus, Cincinnati, Louisville, St. Louis-East St. Louis, Des Moines, Twin Cities, Milwaukee, Detroit, Rochester and Albany; (3) between said basic points and points in all foreign countries through 18 gateway points as follows: Boston, New York, Miami, New Orleans, Brownsville, Del Rio, El Paso, San Diego, Los Angeles, San Francisco, Portland, Seattle, Twin Cities, Milwaukee, Chicago, Detroit, Rochester, and Albany.

Foreign countries mentioned in the application were: through Boston and New York gateways to Newfoundland, Greenland, Iceland, British Isles, and Europe; through Miami to East Indies, Central and South America, and Africa; through New Orleans to southern Mexico and Central America; through Brownsville, Del Rio and El Paso to Mexico; through San Francisco, Los Angeles and San Diego to southern Pacific, southern Asia, West Indies and Australia; through Seattle and Portland to northwest Canada, Alaska and northern Asia; through Twin Cities, Milwaukee and Detroit to central Canada; through Chicago to central and eastern Canada, Greenland, Iceland, British Isles and Europe; through Rochester and Albany to eastern Canada.

Keeshin stated its intention to use cargo planes proven capable of efficiently transporting payloads of freight of five to 11 tons. No aircraft are owned now, but the company has made "adequate inquiry and tentative arrangements" to obtain them as soon as they are available for civilian operation.

Jury Returns Judgment of $77,638 Against AA

Judgment for $77,637.73 was returned by a Los Angeles jury in Superior Judge Harold R. Jeffrey's court on June 3 against American Airlines, Inc.

The verdict came in civil suit brought by Mrs. Ralph Rainger and her three children which asked damages for death of her composer husband totaling $227,637.73. Rainger died with 11 others in the accident near Palm Springs, Cal., when an Army bomber, piloted by Lieut. William N. Wilson, collided with the airliner.

Joe Crider, Jr., attorney for the airline, announced he would appeal the verdict.

West Coast airline circles followed the three weeks' trial closely. The Army pilot was acquitted by a court-martial of blame but was accused by Civil Aeronautics Board of "reckless and irresponsible" action in the midair collision. Findings of a Congressional investigating committee were not allowed to be submitted as testimony in the trial.

April Accidents

Safety Bureau of the Civil Aeronautics Board has received reports of 16 fatal accidents in non-scheduled flying, and one in scheduled foreign air carrier operations during April. Of these accidents, two happened in January and three in March. Investigation has been completed on 12 accidents.

New Routes

(Continued from page 15)

"Questions of international policy make consideration of foreign routes inopportune at this time.

"It is now proposed to proceed with consideration of applications involving additional domestic air transportation as rapidly as possible consonant with the limitations of the Board's staff as well as the staffs of the varous applicants and other interested parties. Such a program should permit of disposition of a large number of applications without placing any undue burden on the industry or the Board, or affecting an efficient discharge of the emergency demands placed on them by the war. Accordingly, the Board has instructed its staff to confer with the interested parties preparatory to arranging the necessary procedural steps for the disposition of such applications and to prepare a pre-hearing conference calendar which will permit the assignment of hearings beginning in the fall. Unless changed circumstances permit a modification thereof, certificates issued will continue to contain a proviso that the service authorized may not be inaugurated until the Board notifies the holder that the national defense no longer requires a delay in the inauguration of service.

"Applications involving special considerations of national interest will continue to be handled on a temporary basis. The policy as announced on Dec. 12, 1941, will remain in effect with respect to cases involving foreign air transportation until such time as changed circumstances make further relaxation appropriate."

Traffic Control

(Continued from page 42)

in order to permit adoption as required.

2. Approach control be made a regular function of all airport traffic control towers operated by CAA.

3. "Inbound control," scheduling of departures from other points to reduce delay at a terminal, be used wherever necessary.

4. The Civil Air Regulations be revised as follows: (a) all direct flight (off-airway) at less than 17,000 ft. above sea level be required to cross or join airways only at designated radio fixes and at an angle not less than 45 degrees to the center line of the airway when flying under instrument flight rules; (b) approval of contact flight rules for flights at altitudes of more than 3,500 ft. above the ground no longer be required.

5. The handling of all contact flight rule flights be divorced entirely from the control activities of a center.

Immediate action should be taken, the study continued, to permit the following facilities to be installed by 1945 in the busier airway traffic control areas:

1. Equipment to permit direct communication between airway traffic controllers and pilots using radio ranges and other radio stations.

2. An integrated automatic communication and posting system be installed at the New York and Washington airway traffic control centers during fiscal 1945, and other centers when required. The system comprises "a network of printing telegraph circuits linking airway traffic control centers to each other, to airport control towers, and to various other points, together with means for automatically transmitting, receiving, decoding, recording and posting information on flight progress boards, airport control tower boards and auxiliary posting boards. It is also adaptable to the distribution of information to military establishments and to automatic reception from and transmission to aircraft when suitable aircraft devices and communication channels are developed."

Development should be encouraged, the study recommended, toward providing in the future:

1. A complete ultra-high frequency radio range system providing adequate right-side lateral separation.

2. Airports designed and located with due consideration to air traffic trends and airport traffic control problems.

3. Instrument approach systems capable of providing for multiple streams of landing traffic, and an airport capacity in instrument weather equal to that in contact weather.

4. Devices in aircraft to (a) indicate position of nearby aircraft accurately enough to permit the pilot to assume some or all of the responsibility for prevention of collisions; (b) transmit position reports automatically; (c) receive control instructions automatically.

5. Adaptation of the automatic communication and posting system to permit receiving of position reports from and transmitting control instructions to aircraft automatically, giving due consideration to the growth of international air traffic.

Airline Commentary

Two issues ago we said our guess on the outcome of the Washington route case was written on a little piece of paper and stuffed away in our desk, and that we'd reveal what was on it when the decision was released . . . Well, the decision awarded United a Toledo-Washington route, TWA got Dayton-Washington and Eastern got St. Louis-Washington . . . Since then several people have become curious about the little piece of paper . . . Here's what it said: "Toledo-Washington for United; Dayton-Washington for TWA" . . . We didn't guess either way on the Eastern application because we weren't sure it would be in the same decision . . . So we were pretty good as far as we went . . .

●

You don't have to work for TWA to get written up in the company's house-organ, "The Skyliner" . . . The May issue carried a brief biographical sketch of W. A. Patterson, president of United Air Lines . . . This, we think, is a very smart stunt and should be copied by the other airlines . . . It's a swell way of familiarizing employes with outstanding figures in the industry . . .

●

Did-you-know department: Did you know that Cy Thompson, well-liked vice president of United, wrote the University of Nebraska's loyalty song quite a few years ago? . . . Did you know that Terrell C. Drinkwater, executive vice president of Continental, recently rode from Denver to Chicago on a streamlined train and spent quite a bit of his time riding up front with the engineer? . . . He reports that it was great sport . . . Did you know that Ray Bell, Pennsylvania-Central's publicity director, is a full-fledged lawyer? . . . Thank goodness it doesn't show up in his releases . . .

●

Col. William Westlake, AAF, ex-TWA publicity chief in Chicago, is now being called "debby" following a recent reference to him in a Washington society column as "the dashing and debonnaire Col. Westlake" . . . And is he burned up!

●

We had a rather unusual experience in being ticketed for a plane trip recently . . . We wanted to fly from Harrisburg to New York on TWA, but were in Washington when we made the reservation . . . After the space was confirmed by TWA's Washington office, we dropped by the airport to pick up the ticket . . . TWA's counter was closed so we bought the ticket from American, using a United scrip card . . . In other words, we took a trip on TWA, buying the ticket from American with a United Scrip card . . . Which is just about the neatest trick of the week . . . American, which certainly had no interest in the matter, was just as courteous and considerate as if we were taking a transcontinental flight on their line . . .

●

CAB's decision to re-open all domestic airline new route cases has been favorably received by everyone . . . The airlines will in this way know where they stand when the war is over, and won't be sitting around waiting for hearings to be held . . . We call it a smart move . . .

●

Speaking of CAB cases, you can look for the Board to take action on an important case soon . . . Indications are that the Universal Air Freight case will be opened soon . . . UAF, you will remember, filed application some time ago for the ground handling of air cargo on a nationwide basis, in competition with Railway Express Agency. . . . A pre-hearing conference will be held soon, followed by formal hearing. . . . Inasmuch as air cargo is one of the most widely (and fervently) discussed subjects of the day, this case will be of importance to many people. . . .

●

The last issue of this magazine carried a bulletin on the front page announcing award of routes into Washington . . . The bulletin stated that Eastern's route would have an intermediate stop at Cincinnati . . . Right away some eagle-eyed reader calls up and says it ain't so . . . And he's right . . . It should have been Charleston . . . So sorry—our error . . .

●

Things-you-should-know department . . . Continental Air Lines operates scheduled flights into the highest airport in the U. S. to be served by a scheduled airline . . . The place, Las Vegas, N. M. . . . The height, 6,860 ft. above sea level . . .

E. B.

KLM to Handle Cachets

To celebrate the first flight in the near future on its proposed service between Curacao, Netherlands West Indies and Miami, Fla., Royal Dutch Air Lines, (KLM), will affix an official cachet to all philatelic mail. KLM has reported that preparations for the service are completed. No philatelic mail will be flown from Miami and intermediate points, only from either or both Curacao and Aruba.

Air Express Gains 47%

Air express handled through La Guardia Field in the first five months of 1943 was up 47% over the comparable period of 1942, the air express division of Railway Express Agency has reported. A total of 2,252,058 pounds of air express cargo was handled for the domestic and international airlines in the five-month period, compared with 1,531,626 pounds in 1942.

"You Walk In The Same Thing You Fly In"

FATHER: "Wonder if there are other fathers of Army pilots who have never been up in a plane?"

SON: *"Why don't you try it, Dad?"*

FATHER: "Still afraid, I guess."

SON: *"But you walk in the* SAME *thing you fly in."*

FATHER: "Meaning what?"

SON: *"Simply that* EVERY *vehicle travels* THROUGH AIR—*be it train, ship, or automobile."*

FATHER: "But THEY travel on the earth's surface."

SON: *"So do our planes, when they begin and end every journey."*

FATHER: "But they don't stay there."

SON: *"That's an exclusive advantage of aviation. The boat out there can only go where the river goes; the train is rooted to the rails. But an airplane is free to go* EVERYWHERE *because air is everywhere."*

FATHER: "OK son, I'll do it sometime when the need is urgent enough."

When—
"The Need Is Urgent Enough!"

Many who never traveled by air before Pearl Harbor have learned that *War* constitutes an urgent enough need to do so now. As a result, they save priceless time and expedite their war-work. They are learning, not only from the Army and Navy communiques, but from *personal* experience, that the *use* of air is indispensable today.

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CAB Reports Cause Of Pan Am Accident

Failure of the captain "to determine his position accurately before descending to a dangerously low altitude under extremely poor weather conditions during the hours of darkness," was the probable cause of the Pan American Airways accident near Ukiah, Calif., on Jan. 21, 1943, the Civil Aeronautics Board reported on June 18.

The accident, involving a Martin M130 flying boat en route from Hawaii to San Francisco, resulted in the death of nine crew members and 10 passengers.

The flight was normal until its reported arrival over the Farallone Islands in the San Francisco area at 6:50 A.M. at an altitude of about 5,000 ft., CAB said. The plane was prevented from landing at San Francisco by darkness and an unusually severe wind and rain storm which resulted in poor sea conditions. Last report from the flight was received at 7:20 A.M.

Capt. R. M. Elzey was aware that he had sufficient fuel to remain aloft for about 10 hours after having arrived over the Bay area and therefore, knew he could remain in the vicinity of San Francisco until at least 9 A.M. for more favorable landing conditions before deciding whether or not to proceed to San Diego, the report said.

"The fact that at 7:15 A.M. Capt. Elzey reported having been over the area, and proceeding due west to sea, indicates that at the time of the accident he believed he was over the ocean and, therefore, free to descend to a lower altitude. Due to the unusually high velocity of the south-southwest wind, the flight, instead of being over the ocean, was carried a considerable distance farther northward and eastward than the pilot anticipated or realized . . . That the captain had not accurately fixed his position as being over the mountain seems clearly indicated by the fact that whether the descent was forced or voluntary, he would not knowingly have continued on the same course at such a low altitude."

Recommendations made by CAB were (1) "that a radio marker or facility be installed on the Farallone Islands or some equally suitable location to be used as an inner marker for all aircraft entering the San Francisco Airway Traffic Control zone from the Pacific," and (2) "that Pan American establish specific holding procedures for flights in the Bay area when landings are delayed on account of weather."

Fears Postwar Era

The postwar period threatens to be "the most critical in the history of the aviation industry," in the opinion of Thomas Wolfe, vice president of traffic for Western Air Lines. Speaking before the Bay Area Chambers of Commerce in Berkeley, Cal., Wolfe declared:

"The pendulum seems to swing rapidly from one extreme to the other about every five years, and the aviation industry is either threatened with death from strangulation or the same ultimate end from overconfidence. It appears that the middle of the road is the most difficult course to take."

The Co-Pilot's Lament

I'm the Co-pilot . . . I sit on the right.
It's up to me to be quick and bright.
I never talk back, for I'll have regrets,
But I have to remember what the Captain forgets.

I make out the flight plan and study the weather,
Pull up the gear and stand by to feather,
Make out the mail forms and do the reporting
And fly the old crate while the Captain is courting.

I take the readings and adjust the power,
Put on the heaters when we're in a shower,
Tell him where we are on the darkest night
And do all the book-work without any light.

I call for my Captain and buy him Cokes;
I always laugh at his corny jokes
And once in a while when his landings are rusty
I always come through with "Gosh, but it's gusty!"

All in all, I'm a general Stooge
As I sit on the right of this man I call Scrooge.
I guess you think that its past understanding,
But *maybe* someday he'll give me a landing.

(This poem was submitted by Capt. Arthur L. Caperton of American Airlines, who states, "I did not write it, nor can I find out who did.")

Traffic Conference Scheduled July 22

Postwar air traffic discussions are on the program for the annual Air Traffic Conference of America July 21 and 22 at Denver, Colo. Vice presidents of traffic and advertising specialists from all of the nation's airlines, in addition to representatives from leading Canadian, Alaskan, and Pan American airlines, are expected to attend. The conference, a division of the Air Transport Association of America, is concerned with problems embracing air traffic, schedules, and related subjects. Col. Edgar F. Gorrell, president of the Air Transport Association, will attend.

AA Holds Election

Fifteen directors of American Airlines, Inc., were elected at the annual meeting of stockholders recently. They are: Harold T. Ames, Harry E. Benedict, James Bruce, Edward H. Butler, Amon G. Carter, Ralph F. Damon, Silliman Evans, John W. Farley, Thomas S. Hammond, Chandler Hovey, A. N. Kemp, Walter Scott McLucas, Orval M. Mosier, Edgar M. Queeny, and Charles A. Rheinstrom.

Movement of Flaps Caused AE Accident, CAB Report States

Inadvertent actuation of the wing flaps to the full 35 degree "down" position during the take-off run, thereby rendering the aircraft excessively nose-heavy and uncontrollable, has been given by the Civil Aeronautics Board as the probable cause of the American Export Airlines accident at Botwood, Newfoundland on Oct. 3, 1942.

The Vought Sikorsky 44A flying boat fell into the Bay of Exploits at Botwood immediately after take off, killing five members of the crew and six passengers and seriously injuring three crew members and five passengers. Two crew members and 15 passengers suffered minor injuries and one crew member escaped injury.

"The take-off run was made in a northerly direction," CAB said. "As the aircraft came up onto the step, the nose dropped and the plane began to porpoise. On the second or third porpoise the plane left the water, and after reaching an altitude of about 10 ft., it settled back on the water with a light skip, and took off again at a nose-high angle of about 30 degrees. After reaching an altitude of approximately 35 ft., the plane leveled off, then gradually nosed down, becoming so nose-heavy that, according to the captain he could not check its further downward path."

There was evidence, the Board said, that although the captain had intended to take off with the flaps fully retracted, the flaps were set in operation from the "off" position to the full 35 degree down position "in some undetermined manner at the start of the take-off."

A contributing factor, CAB said, was the "absence of the required stop-spring on the flap control switch which was for the sole purpose of preventing inadvertent application of the 35 degree flap."

It recommended that the CAA check "any of this type aircraft engaged in commercial operation and require the safety stop-spring to be reinstalled on the flap selector switch."

Civil Airlines in Canada Show Good Traffic Gains

Canadian air lines in scheduled operations flew 674,942 lbs. of mail in December, 1942, "by far the heaviest mail carried in any month," and a large increase over the 430,256 lbs. carried in December, 1941.

Similarly, operating revenues over licensed routes increased from $740,802 to $1,111,918 in the same month, but was offset by increase in operating expenses from $829,536 to $1,330,276, which increased the operating deficit from $88,734 to $218,358.

There was a slight increase in revenue passengers carried, 15,690 against 13,139, but the December, 1942 figure was 6.6% smaller than in November, 1942. Revenue freight hauled increased from 807,238 lbs. to 835,235 lbs.

Average passenger journey increased from 296 to 375, and average consumption of gasoline per aircraft increased from 45.3 to 51.6 gallons, or 14%.

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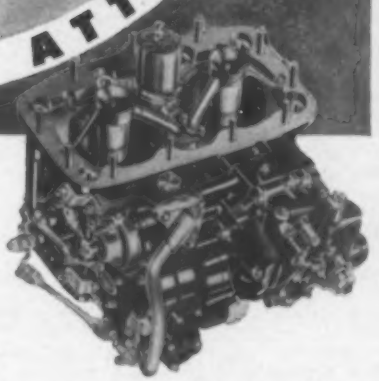

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Precision Equipment by Bendix AVIATION CORPORATION

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South Bend, Indiana

Fixed-Base Operation Has Bright Future

Postwar Plans for Independent Dealer Offer Wide Variety

By E. J. FOLEY

ENTHUSIASTIC optimism prevails in many quarters relative to the postwar activity in the industries of the air. This anticipation and preconception are not the right and property alone of aircraft manufacturer or airline operators.

They prevade the field of the fixed-base operator, the important "independent dealers" in the industry. In spite of setbacks and difficulties which appear duration-long, these men have lost no spark for the business. They are dreaming *and* practically planning for the future.

Foley

G. R. Shoemaker of Williston Park, Long Island, N. Y., writes, chiding us for "concentrating your articles on the immense fellows" and goes on to sketch certain functions which appear appropriate to the fixed-base operator after the war. In answering his letter here, we hope to achieve the dual effect of: (1) picturing clearly to the major airlines the interesting trend of thought being pursued by this phase of the industry and, (2) presenting to the fixed-base operators several ideas for their consideration.

May we assure Mr. Shoemaker of our interest in his subject. Any neglect of this phase on our part has been the result of our feeling that attention to some of the "big" problems first could best serve the entire industry.

Feeder Trend

The first prediction made in the letter proposes the feeder operation of a DC-3, "a C-47 bought cheap from the Army," between, let us say, Williamsport and New York twice daily by the small operator. The carriages of mail, cargo and passengers on such a line is suggested as possible through a working agreement with the major operators. By extrapolation of this predicted trend, it is not difficult to visualize similar services originating in small bases in such cities as Utica, Scranton, Elmira and so on. Our reader proposes that this operation be the basis of the business, that it "will keep the man on his feet."

We have no fault to find with the basic premise as stated. Undoubtedly, the need for "feeder" air transportation will be great and all communities which evidence a desire for service and indicate the capacity to justify their desire should be served on our air network. However, each of such operations becomes a problem of air carrier certification of one sort or another. The potential entry of so many "unit airlines" into the field poses many problems of regulation and standards. We think most of the industry will concede this statement without labeling our attitude as "big business."

Similarly, the operation presents many evident problems to each operator. The maintenance and overhaul of engines and other component parts may be solved by the utilization of manufacturers' facilities therefor. The expense of such arrangements as a factor in operating cost must be thoroughly explored.

The standards of operation required would be high in view of the tie-in and working agreement which the independent operator would have with the major air transport operators. By the same token, extremely low rates do not appear to be assured to such an operator. The potential economies of fleet operation are well without the reach of this type enterprise.

It is possible that the working agreement between the small operator and the large airline or airlines could be extended to include such elements as major service work, liaison ticketing and the like. This would be a considerable relief to the small operator but, at the same time, we cannot see it as a gratuity from the established air carriers.

Our correspondent's next point is a more thoroughly valid one, we believe. He treats the handling and sale of fuel and oil to the private plane owners operating out of our Williamsport base. Just how much of such business there will be is a fact that many would like to be able to determine. We personally don't feel that too much optimism should be founded on this point. Surely we can expect an expansion of interest in private flying, but actual concrete realization of this interest as in the form of fuel and oil sales we foresee as a *gradually* increasing element. However, the small operator should be able to realize something from the marketing of these necessities.

In the same breath, Mr. Shoemaker indicates that the operator should encourage the development of a housing project as an integral part of the airport project or just "across the way." These homes would provide personal garage-hangars for each resident in his own back yard. We have seen many people whose heart was in the business 100%, and yet who could not live within five miles of the airport. We don't know whether or not this sentiment is strong in the majority. If it were, this idea might be quite impractical.

When the time comes for us to use a backyard garage as a hangar, it is our feeling that the aircraft operated will not require an airport. If the perfected helicopter principle is applied to a private type chassis ultimately, hovering over a gas station may be the order for fueling and a garage hangar with a roof door may provide our housing.

The next suggestion made treats the repair facilities which the small operator can make available to the private operator, and a suitable sales adjunct which is particularly interesting. Speaking of engine service, the writer prefers to envision specialization of the operator on one particular unit. He presumes it to be a 100 hp. engine used singly in a three-place aircraft and in a twin installation for a six-place ship. In bringing home the need for simple, swift and inexpensive engine removal and installation means, the letter supports the cause that we have been battling for in large transport aircraft for months. The sale of rebuilt engines is also mentioned.

Showroom Suggested

The sales item which is especially worthy of note is covered by the prediction that this same 100 hp. engine may have an automobile designed around it. In this event there appears to be sound reasoning behind the development by the operator of a showroom and sales office for the car at the airport. We need carry this idea only a little further to include the automobile service function which would be considerably facilitated by the operator's thorough familiarity with the engine involved.

A subject which is already being given thought within the senior air transport industry is that of "drive yourself" service being made available for passengers. Mr. Shoemaker's suggestion would have this same service offered at the small base to visiting airmen and the like. This is a really sound idea and one on which *American Aviation* commented editorially and favorably not so long ago. We see it as a powerful driving element in the growth of the entire air transport industry. There is no reason why the small base operator having sales agency for a certain car could not use this same car for his "drive-yourself" medium. In this way he would be getting profitable publicity in the form of demonstrations to probably 80% of the customers.

In concluding, the letter generalizes upon the refinements, comforts and recreational facilities that might be grouped around the airport. We are led to the consideration of the airport as a possible center of an independent community made up of air-minded individuals.

We are sincerely appreciative of the comments Mr. Shoemaker has given us. Whether we have agreed with or qualified his concepts and predictions is beside the point. He has done much to enlighten us regarding the interest in small operation and the possible functions making up such an enterprise.

Data Case: Of laminated plastic stitched with steel is said to be light, durable and inexpensive by the manufacturer, General Aviation Equipment Co., Inc., Ashley, Pa.

The case cover is so sprung as to remain open when unfastened and the fastener employed is operable with one hand. The case is finished with two coats of high-gloss, moisture-resistant lacquer.

Reflected Light Is Newest Landing Aid

A landing indicator, which will enable an average "day-time pilot" to make safe landings at night, has been developed and tested.

Charles Adler, Jr., of Baltimore, Md., who last year assigned his patents on the familiar flashing red-white taillight, "to the people of the United States", is the inventor.

Night landings, even with the aid of landing lights, require a great deal of skill, he points out. There is an element of danger because the pilot does not know how far the wheels of his ship are above the ground and he must feel the precise time to make the actual contact with the ground. Judgment in this regard is rendered the more difficult because depth perception is distorted at night and many accidents have occurred by pilots leveling off too soon and "dropping in," or by leveling off too late and nosing over.

Adler's device, which has been installed on a Stinson Model 105 consists merely of two lights angularly disposed about the lateral axis of the ship, and a small convex mirror attached to the nose, in the pilot's normal line of vision. The lamps project narrow, pencil beams of light which form two small bright spots of light on the ground, which are reflected by the mirror on the nose.

While the aircraft is in flight, the mirror is dark. But, when bringing his ship in for a landing, as the wheels are about ten feet from the ground, the pilot sees two spaced spots of light in the mirror which move toward each other and converge into a single spot when the landing wheels reach the critical height of three feet above the ground, which is the correct height for stalling the ship and making contact with the ground.

The first appearance of the spaced light-spots in the mirror is a signal to the pilot to begin to level-off; and as the spots move toward each other, he slowly pulls up the nose. When the spots converge, the pilot tends to keep them from separating, and the ship settles to the ground in three-point position.

A successful demonstration of the apparatus was given by Adler to officials of the Civil Aeronautics Administration at Washington National Airport, and permission was given to The Baltimore School of Aeronautics for further test of the device in conjunction with the training of students in night flying.

Landing Aid: Small mirror on the nose of this ship reflects lights which show when plane is three feet from ground, telling the pilot when to level off in night landings.

New Angle Gauge Used in Making Plane Components

Said to have been successfully used in the manufacture of propeller blades and the checking of wing, tail, aileron and fuselage sections, a new vernier angle-gauge has recently been introduced by Engis Equipment Co., Chicago. Called the Clinometer, the unit employs a new gravity mechanism. The action of the instrument is effected by a free swinging drum graduated in 360 degrees and mounted in ball bearings.

When the device is applied to an inclined surface, the drum swings to a position which brings its center of gravity under its center line. The degrees can then be read from a pointer located above the drum. Minutes of the arc are indicated by a separate vernier scale. Reading is facilitated by a brake mechanism and a magnifying-glass attachment. Repeating accuracy has been tested to a precision of 7½ seconds; reading accuracy to one minute.

Aircraft Parts Company Makes New Hose Clamps

The Aircraft Standard Parts Co., 1711 19th Ave., Rockford, Ill., recently introduced a new line of "Aero-Seal" hose clamps in 14 sizes from ¾" to 4". Because of the extreme take-up possibilities claimed for the clamp, six of these sizes are said to cover the full range.

The Clamp, designed on the basis of AAF Spec. 25529, consists of a 9/16" tempered steel band punched with holes corresponding to the teeth of a worm gear. These teeth mesh with a worm in the housing, welded to the fixed end of the band. The worm, or adjusting screw, is turned with a screw driver and a safety cup on the screw head prevents damage. The beltlike tightening action is said to provide a leakless seal.

Plastic-Bonded: This employe of Aviation Engineering, Inc., Atlanta, Ga., is displaying a plastic-bonded plywood tail-cone fabrication. The company specializes in the bag moulded process which is said to make a part having dimensional stability and great strength. T. Edward Moodie is executive vice president and chief engineer of the organization.

THE WHITING MODEL E5
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The Whiting Model E5 is a multi-purpose engine, block, and cylinder tear-down and assembly stand.

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WHITING CORPORATION

Aviation Division

Renegotiation Law Changes Urged by Coast Spokesman

Postwar Reserves and Tax Allowance Given Consideration

POSTWAR plane manufacturing will be delivered to the automobile industry, unless adequate provisions are made now to build up the reserves of the infant aircraft industry, Francis A. Callery, vice president in charge of finance at Consolidated-Vultee, told the House Naval Affairs Committee in recent testimony on the renegotiation law.

Callery, speaking for Douglas, Ryan, North American, and Northrop, as well as his own firm, made three specific proposals for revisions in the nation's wartime profit limitation statute: (1) renegotiation after taxes; (2) allowances for postwar reserves; and (3) an improved termination agreement on government war contracts.

Callery commended the intent of the renegotiation law to prevent wartime profiteering. His proposals for change in the measure apparently were favorably received by Committeemen and generally concurred in. He urged:

(1) Renegotiation After Taxes. Renegotiation should be based on net profits after taxes, instead of earnings before taxes, as is now the case, and a certain percentage of profits—about 3%—should be exempted from renegotiation, Callery maintained.

He pointed out that taxes are an unavoidable and irreducible element of "cost."

"It makes as much sense to renegotiate before payroll deductions or any other item of cost as it does to renegotiate before taxes," he remarked.

Instead of trimming down the work of the Price Adjustment Boards by exempting all contractors with an annual government business of under $500,000, as has been advocated by the Navy and War Depts., Callery proposed that companies be exempted on the basis of profits earned. For example, if the statute were revised to allow 3% profit after taxes, a company earning 3% or less on government business would be exempted from renegotiation. He claimed that this would be the fairer method, that firms doing under $500,000 annual business might well be earning excessive profits that should be pared down by renegotiation.

Callery called attention to the fact that the tax law favors old companies with low bases, and penalizes new industries, such as the aircraft, with high bases.

An automobile firm, for example, might take the product developed by the "sweat" of an aircraft company, and for the same production, the automobile company might pay around 40% or 50% taxes on profits, while the aircraft company would pay 70% or 80%. The automobile company would sustain for the same performance, a larger margin of profit after taxes than the aircraft company which had toiled for years to develop its craft to the production stage.

Rep. Warren Magnuson (D., Wash.), presiding, concurred "that aircraft companies are placed in an inequitable position by our tax laws."

2. Postwar Reserves. Department renegotiators should be directed to make allowances for postwar reserves, Callery said, suggesting also that an increase in the rate of withholding tax for postwar conversion from 10% to 20% would help the situation.

Postwar reserves are the most important problem confronting the aircraft industry, Callery told the Committee. Stockholders in the aircraft industry would be better off without the fantastic increase in business due to the war, he said, maintaining that profits in the aircraft fields are only "bookkeeping" profits. Points he made in this connection were: (a) at the end of the war, aircraft companies will have liabilities far exceeding working capital; (b) this will place firms in the position of being unable to liquidate, even if they desired to evade their responsibility of creating cargo and transport ships which will place the U. S. in a ranking position in a postwar era of air transportation; and (c) the reserve funds the companies do have are inadequate to carry them through the period of developing commercial plane prototypes and putting them into production.

Champ Riveters: These two young women, both of Italian extraction, have established an industrial record at the Tarrytown, N. Y., plant of the Eastern Aircraft Division of General Motors Corp., by riveting an entire trailing edge wing assembly for an "Avenger" torpedo bomber in less than six hours. They are, left to right, Rose Bonavita, an ex-laundress of Peekskill, N. Y., and Jennie Fiorito, a former automobile trimmer, of Ossining, N. Y.

Kenneth Rockey, chairman of the Navy's Price Administration Board, agreed with Callery that there should be further provisions for reserves for aircraft companies, which "will be in a very serious and vulnerable position after the war."

"After this war aircraft manufacturing will shrink to a fraction of what it is—even aviation enthusiasts realize this," Callery remarked, "and completely new types of planes will have to be produced." He argued that if the aircraft manufacturers are left without adequate reserves for adaptation to peacetime production, plane manufacturing will be delivered to automobile companies, who over their long period of established operation have built up reserves.

"We are concerned with survival," he emphasized.

3. Termination of War Contracts. There should be provision for the orderly termination of war contracts, so as to prevent as far as possible, economic disruptions, Callery stated.

He pointed out that under the present policy, contemplating abrupt cancelation of contracts, firms would suffer drastic losses, because they could not possibly put an immediate stop to operating expenses, such as salaries and wages.

A suggestion by Magnuson that "notices of termination" should be promulgated before cancelation, Callery said, "would help the situation" by enabling firms to taper off production, dispose of stocks on hand, and employes.

Callery maintained that it would be to the interests of the government to gradually cancel war contracts, thereby getting finished planes instead of stocks of semi-fabricated materials which could not be used.

Reports on Consolidated-Vultee: Callery furnished the Committee with the following information on Consolidated-Vultee, of which he is vice president:

1. In November, 1942, the company refunded $127,400,000 to the government, of which $41,000,000 was a cash refund. In addition the firm will refund about $20,000,000 when pending renegotiations are concluded.

2. The firm had sales amounting to $400,000,000 in 1942.

3. The firm employs 90,000, of whom about 40% are women.

4. There has been no financing by stocks at Consolidated since 1923; Vultee was financed by $3,000,000 in 1939 and $6,000,000 in 1941.

5. When present negotiations are completed, the firm will have $18,000,000 (round numbers) equity in business. Of this, $9,000,000 will be in plant account; $9,000,000 in working capital. (In 1941, the firm had $9,000,000 equity in business.) Of the $18,000,000 equity in business, $4,000,000 will be set aside for postwar reserve, for development of the firm's 100-passenger prototype.

6. The government has invested $22,000,000 in Consolidated's Plant two in San Diego. Callery remarked that in 1941 the firm earned over $8,000,000 without the government facilities and $9,000,000 in 1942 with the government facilities, drawing the point that aircraft firms are not being allowed to profit through government-financed plants.

7. The firm has had a 5,000% increase in executives' salaries. "This is explained by its mushroom expansion," Magnuson suggested.

Douglas Engineer Forecasts Limit on Size of Transports

By Peggy Guetter

CUTTING through the maze of extravagant predictions for postwar air transport in which mammoth goliaths of the air, powered by enormous motors or jet propulsion, wing through the air for thousands upon thousands of miles, Arthur E. Raymond, vice president of engineering for Douglas Aircraft, foresees efficient long-range transports leveling off with the 160,000 pound, four-engine plane capable of carrying something like 100 passengers and 40,000 pounds of cargo.

"We don't believe in building a big plane, just to produce a big plane. Hollywood showmanship doesn't enter into production of a plane which can be operated economically and at the same time be produced economically," stated Raymond during an interview with *American Aviation* following his promotion to the Douglas Aircraft executive committee.

Raymond

From the man who has directed and been associated with Douglas transports from the DC-1 through to the DC-4, as well as the B-19, came the opinion that an efficient, money-making, postwar transport would not exceed the B-19 in size. Its cruising speed would approach 250 miles per hour, with a cruising altitude at 20,000 feet.

"You have only to look at a global map to see that, with but two or three exceptions, world trade routes provide sufficient refueling stops so that your longest hop would be not more than 2,500 miles. Why cut into profitable operation by building mammoth, super-range planes? After all a jumbo olive doesn't taste any better for its extra size."

As for improvement in engines and propellers modifying his ideas on plane design, Raymond displays a similar lack of enthusiasm for merely big motors. Again he feels that size is not the proper criterion.

"More horsepower per engine for the same size and weight, yes," he agreed. "But more horsepower in larger units at the existing per-pound-per-horse ratio, no. That wouldn't be any help."

Propellers have reached such a degree of mechanical perfection that the margin for efficiency improvement is only a few per cent, he thinks, and foresaw no radical changes coming up in this field.

Commercial planes of the future will be designed as combination cargo and passenger carriers, in Raymond's opinion. Costs of providing separate types would be prohibitive to an operator or to a plane manufacturer and the merits of such a division, if any, certainly would not justify the expense. Furthermore, the combination plane offers a flexibility essential to any profitable operation, he feels.

The glider train, too, will have its place in postwar transport, but Raymond feels that once again the claims for it have not been substantiated in the light of practical experience. "For short haul operation and used in combination with the proper tow plane in specialized cases, a glider train will add flexibility to certain operations," he believes.

"Yet for long haul operations, taking into consideration weather and other safety factors of terrain and single engine ceiling, a cargo plane minus gliders will remain the ideal operation."

Raymond pointed out it will be several years after the war's end before mass production brings forth peace time planes to prove or disprove any theories.

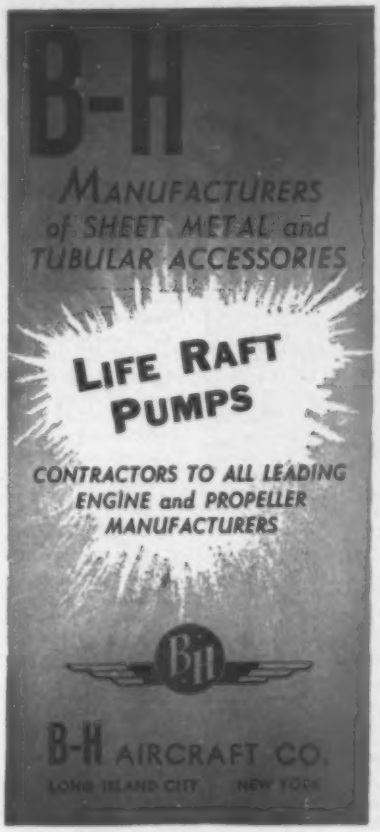
During this transition period he hopes to see the much discussed surplus cargo planes of the war—thousands of which have been turned out by Douglas, by the way—utilized in the rehabilitation of devastated countries, in the distribution of food, medicine and other immediate essentials and by inaugurating or extending transportation within countries like China, India and the African colonies now inadequately served, if at all.

"With the coming of peace, it would be my thought that the government should sort out cargo planes in good operating condition and place them immediately in such service. This, rather than to tuck them away somewhere to rust. But to protect the reputation and prestige of the U. S. they should be completely serviceable units, of course."

Raymond thinks they should be sold to the nations that need them at fair and not give-away prices but on a reasonable, long-term basis calling for retirement on a definite schedule as more efficient postwar planes leave the assembly line.

Such a plan, he opined, would give plane-builders a definite replacement program to meet and also would give them a manufacturing sight on the types and quantity to produce.

"In this manner," Raymond predicted, "we can create international markets for American planes in the very process of rehabilitating the world."



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Manufacturers Offer Plan For Surplus War Aircraft

By CLIFFORD GUEST

THE aeronautical manufacturing industry went on record last fortnight with a series of recommendations for handling of surplus aircraft and for a free enterprise policy of international airline operation in the postwar period. Coupled with the recommendations was a warning that the U. S. government should take steps immediately to clarify its policy in order that industry plans may be laid before actual termination of military contracts.

Payne

The proposals were put forth by the manufacturing industry for the first time through its members on the Postwar Development Committee of the Aeronautical Chamber of Commerce, headed by John Howard Payne, in a provisional reply to CAB's 17 questions on civil aviation issued early in May.

To avoid dumping military planes on the market to compete with privately-produced planes, the committee recommended:

1. Use of surplus aircraft to return military personnel to the U. S. and carry supplies to foreign nations for rehabilitation, and also for proposed policing programs.

2. Return of unused surplus aircraft to the original producers on a consignment basis to be sold by the producers at prices set by negotiation with the government.

3. Loan or lease to U. S. or foreign airlines, contingent upon the borrowers placing orders for a similar quantity of postwar-produced aircraft.

4. Dismantling of the final unneeded residue and sale of subassemblies to owners of outmoded craft.

Regarding airline questions, the Aero Chamber's committee recommended reciprocity agreements to achieve an optimum flow of air traffic, avoidance of delay in establishing leadership and safeguarding U. S. rights to air routes throughout the world; preservation of freedom of private enterprise and keeping the government out of actual airline ownership or operation; and an international conference on uniform standards of safety and navigation.

Priority assistance for experimental work on postwar aircraft was recommended, together with a policy to provide for retention of key personnel in the manufacturing industry.

Excerpts from the committee's statement follow:

On Questions 1, 6, 9 and 10 dealing with international air routes:

"One of the basic basic principles to be considered is that the establishment of international air routes should not be limited by any artificial means which tend to restrict, divert or otherwise prevent the optimum flow of air traffic . . . That form of reciprocity agreement which will achieve the optimum flow of air traffic . . . should be sought."

On Questions 2, 3, 4, 5 and 7 on transit, operating and commercial rights:

"The rights necessary to enable U. S. flag carriers to extend their air routes throughout the world should be safeguarded and the U. S. government should secure equal opportunity for U. S. flag carriers, with respect to foreign flag carriers, to obtain the necessary rights to carry on international air transport operations.

Call for Leadership

"The right of innocent flight, together with the right to land for refueling and other technical purposes, subject to military restrictions for safety as the peace may require, should be agreed upon by all nations allied with the victors in this war. If we delay in assuming the leadership in establishing this principle until after the war is over, it may result, as in the last war, that our opportunity to achieve this end may be lost."

On Questions 8, 11 and 12 on governmental assistance:

"The important principle to be observed is the preservation of the freedom of private enterprise. The U. S. government should not conduct international air transport operations, in whole or in part, through internationally owned and controlled government corporations, except as some measure of government control of private operations may be necessary during the immediate postwar era in connection with air policing and rehabilitation, and while the government is getting out of the wartime transportation business.

"The U. S. government should not own, financially control or manage any U. S. flag carriers engaged either in domestic or international operations, since this would invade the field of private enterprise.

"The proper sphere of government assistance to U. S. flag carriers lies in negotiating with foreign governments with respect to the basic agreements under which international air transport operations may be carried on, in securing for existing and potential U. S. flag carriers the equal opportunity to obtain necessary transit, operating and commercial rights and privileges, with respect to foreign flag carriers, and in aiding such U. S. carriers, where necessary, in competing with subsidized foreign flag carriers, or by negotiation, preventing such subsidized international competition from taking place."

On Questions 13 and 14 regarding international regulations and agreements:

"Insofar as an international agreement on safety standards with respect to navigation facilities, certification of aircraft airworthiness and aids to navigation are concerned, there should be developed through the organization of an international conference, uniformity of standards as to design, stress analysis and in general terms 'airworthiness', which standards will be adopted by the regulatory bodies of the governments involved.

"Such conference should make adequate provision for a continuing service of standardization to the end that American aircraft and aircraft accessories as designed, constructed and approved by the regulatory bodies of the U. S. shall be acceptable as meeting the standards of certification in any country in the world.

"In addition, international agreements should be worked out to encourage use and sale of personal airplanes, by means of standardization of traffic regulations and with elimination so far as possible of tariff on airplanes and airplane parts. Customs procedures and passport requirements should be standardized and held to a minimum to encourage international flying in personal airplanes."

Surplus Aircraft

On Question 15 regarding disposition of surplus aircraft:

"Due to the magnitude of the postwar problem facing aircraft manufacturers, it is essential, as a principle of government action, that military planes should not be dumped on the market by government in a manner that would make such government sales competitive with the sale of privately produced commercial planes, i.e., planes of six passenger capacity or more.

"One method by which this principle might be carried out is now under consideration by members of the industry. The government might well use all surplus transport aircraft for returning U. S. military personnel to the U. S. and on the return trips carry supplies for rehabilitation. Other surplus transport aircraft should be used for policing and extension of the good will of the U. S. throughout remote territories.

"The unneeded surplus of these potential commercial transport planes should be returned to the original U. S. producers on a consignment basis for overhaul and conversion, and should be either (1) marketed by the original producer at prices established by negotiation between the original producer and the government, or (2) loaned or leased

(Turn to page 70)

Kitchen on Wheels: This is one of the new mobile kitchens in use at Consolidated Vultee Aircraft's Fort Worth plant. The company claims it conserves production time.

Charles Jamieson Named Culver's Chief Engineer

Charles M. Jamieson, 26, a flier, has been appointed chief engineer of Culver Aircraft Corp., Wichita, Kan. He has been with Culver since 1938, when he joined the engineering staff as assistant chief engineer.

Jamieson

Since January, 1942, Jamieson has spent most of his time in engineering military aircraft. When the Culver factory was moved to Wichita in 1940, he was assistant to Albert W. Mooney, now vice president and chief designer.

Jamieson is a graduate of Parks Air College, East St. Louis, Ill., from which he received a B.S. in aeronautical engineering in 1938, along with an A and E Mechanics rating. He started flying in 1935.

More Firms Join Coast Manufacturers' Assn.

C. C. Codding, general manager of Aircraft Parts Manufacturers Association, West Coast, in releasing names of 35 companies admitted to membership of the Association during May and April, points to decentralization of industry indicated in the membership list.

More than half are in outlying cities of Los Angeles area. These are: Witteman Co., Alhambra; Librascope, Inc. and Menasco Manufacturing Co., Burbank; Compton Metals Co., Compton; Western Stove Co., Inc. and Collins Engineering Co., Culver City; Redfield Manufacturing and Machine Co., Inc., Garvey; Fischer Corp., Sturgess, Inc. and Utility Tool and Die Manufacturers, Glendale; Associated Aircraft Parts Co., Hydraulic Manufacturing Co., Olmstead Manufacturing Co., Inc. and Century Aircraft Co., Inglewood; Western Aero Hydraulics, Inc., North Hollywood; Aircraft, Inc., Santa Monica; American Stamping and Manufacturing Corp., Aviation Products Co. and Capital Aircraft Co., Venice; Nemec Combustion Engineers, Whittier.

Codding

New members within Los Angeles are: Allied Appliance Co.; Allite Manufacturing Co., Durochome Company, Inc.; Holister Coil Spring Mfg. Co.; Junkin Machine Co.; Los Angeles Heavy Hardware Co. (Aviation Division); Mitchell Camera Corp.; Price-Pfister Mfg. Co.; Rehrig-Howard Company; Rogers Pattern and Foundry Co.; Smith Meter Co.; Steel Forming Corp.; Valley Tool Company, Inc.; Wire and Metal Mfg. Co.; L. A. Young Spring and Wire Co. (Aviation Division).

Nash-Kelvinator Will Start Producing New Type Helicopter Soon

Helicopter production by Nash-Kelvinator Corp. soon will be started, G. W. Mason, president of the company announced last week.

"We have completed arrangements with the Army Air Forces for quantity production of Sikorsky helicopters. The actual number of units involved and the location of the plant where they are to be built cannot be disclosed at this time," Mason said.

Production will follow designs completed by the Sikorsky Aircraft Division of United Aircraft Corp., of which Igor Sikorsky is engineering manager.

"The helicopter we will build represents an advance over the model which recently underwent tests at Wright Field," Mason added. "It will incorporate certain improvements and features developed by the Army Air Forces as a result of those tests. Our engineering staff already is at work on the job and actual production will start just as quickly as our facilities can be made ready and men can be trained to do the work."

Yost Named Chief Engineer At Consolidated-Nashville

Luther Yost has been promoted from assistant chief engineer to chief division engineer at the Nashville division of Consolidated Vultee Aircraft Corp. He succeeds J. L. Fechter, who has held this position on special assignment for the past three months.

Since he came to the Nashville division as controls coordinator in 1941, Yost has progressed from that status to engineering coordinator and then to assistant chief engineer. He was previously at Vultee Field in California, during 1937-1938.

Before joining Consolidated Vultee, Yost had held engineering positions with North American Aviation, Inc., Martin and Svenska Aeroplane Company of Sweden.

Cooper in Charge of Sales Division of Aviation Corp.

W. K. Cooper had been named vice-president in charge of sales of Aviation Corporation, it is announced by William F. Wise, executive vice-president of the corporation. Cooper's office will be at 1155-16th Street, N. W., Washington, D. C.

Cooper

Cooper entered the Aviation field in 1938 when he joined the Lycoming Division of The Aviation Corporation at Williamsport, Pa., after having served for several years with the New York Shipbuilding Corp., one of Aviation Corporation's associated companies. After three years as general manager of the Lycoming Division, manufacturer of engines widely used in aircraft ranging from light training to liaison planes to twin-engine military types for advanced training and miscellaneous transport, he became general sales manager of Aviation Corporation.

Preferred Stock Called

Board of directors of Aircraft Accessories Corp., Burbank, Cal., has called all outstanding cumulative convertible preferred stock, which will be retired as of July 30, 1943, according to the company. Directors decided that holders of this stock will be paid $9.90 per share plus all accrued and unpaid dividends. Aircraft Accessories has plants in Missouri, Kansas and Burbank.

Aero Services Moves

Aero Services, Inc., has announced its removal to new, permanent plant at Metropolitan Airport, Van Nuys, Cal. Company was formerly at Grand Central Air Terminal, Glendale.

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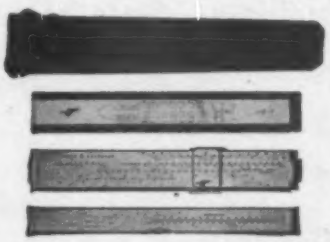

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Manufacturers Offer Plan

(Continued from page 68)

to U. S. or foreign airlines for limited periods, contingent on the borrowers or lessees placing orders for an equivalent number of new (postwar-produced) aircraft of at least equal load capacity, with U. S. producers—the loaned or leased ex-military planes to revert to the U. S. government immediately upon delivery of the new, replacement planes.

"The final residue of these returned planes should, under government contract, be dismantled at the factories of the original producers and the salvaged parts or subassemblies offered for sale by the original airplane producer, at prices established by negotiation between the original producer and the government, to foreign and domestic owners of these outmoded types of transport planes.

"This method of disposing of surplus military aircraft, suitable or convertible for civil use, assists through conversion work in absorbing surplus factory labor and also eliminates the government from competing in a merchandizing way with private industry."

On Question 16 regarding conversion of aircraft plants to peacetime basis:

"Encouragement should be given now by the government to aircraft companies who are planning to remain in the postwar aircraft business, to prepare to meet their postwar problems.

"Insofar as it does not interfere with the war effort, priority assistance should be given for experimental work relative to postwar projects. Actual construction of the postwar aircraft should begin as soon as facilities are made available by decline of military contracts.

"Also, postwar planning should be given consideration in retention of key personnel under the manpower regulation. U. S. aircraft manufacturers should be authorized to devote engineering time to preparing plans for commercial aircraft as soon as the war demands have subsided to the extent where this is feasible. They should be encouraged to maintain the highest efficiency of foreign service personnel, developing them into instructors for local nationals in order to spread U. S. good will and aircraft proficiency among foreign nationals who may be encouraged to develop private airline operating companies.

"Tax relief should also be given in order to encourage the starting of postwar plans now, such as approval of accelerated accumulation of postwar conversion or rehabilitation funds diverted from current earnings."

Thirty-five members of the Postwar Development Committee of the Aero Chamber, individually or for their companies, concurred in the joint statement to the CAB. The Chamber's Postwar Executive Committee expects to develop further recommendations. The drafting committee was composed of John Howard Payne, manager of the Economic Development Department of the Chamber; I. H. Taylor, formerly general manager; and Sol Voorhes, assistant to the president of Lockheed Aircraft Corp.

As head of the Economic Development Dept., Payne is directing an exhaustive series of postwar studies for the Chamber. He has been with the Chamber for a year, previously was with Army Air Forces Intelligence for two and one-half years. Prior to that he was in charge of accident statistics in the vital statistics division of the Dept. of Commerce, had service with the Labor Dept., and for three years was in the research and planning department of the old NRA. For seven years he was with General Electric Co. in the engineering research laboratories and research department. He is a graduate of Union College in engineering mathematics and of American University in air transportation.

Following are members of the Postwar Development Committee concurring for their companies in the joint statement to CAB:

The following members of the Post-War Development Committee concurred for their companies in the joint reply:

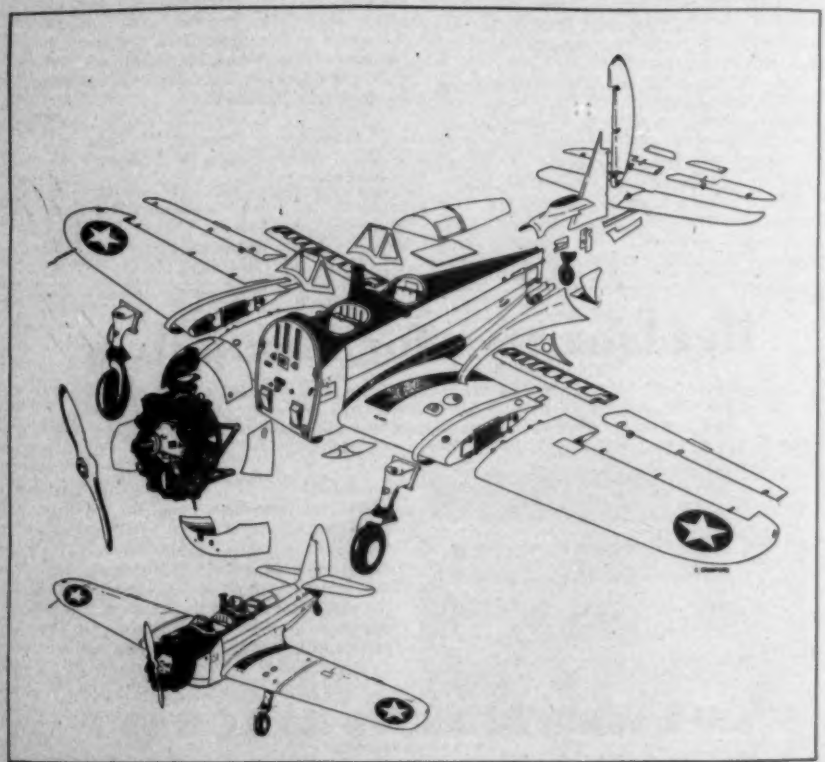
Aircraft Accessories Corp., Emery F. Johnson, Washington regional manager; Aeronca Aircraft Corp., E. R. Burn, director of research; Aircooled Motors Corp., C. F. B. Roth, general sales manager; The Aviation Corp., Ira J. Snader, vice president-manufacturing; Brewster Aeronautical Corp., Zeus Soucek, vice-president; Boeing Aircraft Co., James P. Murray, vice-president; Babcock Aircraft Corp., V. C. Babcock, vice-president, chief engineer; Bellanca Aircraft Corp., Harlan L. Thompson, assistant secretary.

Beech Aircraft Corp., O. A. Beech, president; Bell Aircraft Corp., Frederick P. Neely, Washington representative; Culver Aircraft Corp., T. Bowring Woodbury, general manager; Commonwealth Aircraft Corp., C. H. Dolan, II, president, general manager; Consolidated Vultee Aircraft Corp., Palmer A. Hewlett, Washington representative; Cessna Aircraft Corp., Don Flower, sales manager; General Electric Co., E. G. Haven, Assistant manager, Aviation Dept.; G. & A. Aircraft Corp., Paul Thomas, vice-president; Globe Aircraft Corp., E. H. Jackson, secretary.

Howard Aircraft Corp., C. W. Freitag, vice president; Kellett Autogiro Corp., L. C. Peskin, products engineer; Lockheed Aircraft Corp., S. W. Voorhes, Assistant to the president; McDonnell Aircraft Corp., A. Ogden Pierrot, Washington representative; Parker Appliance Co., Archie Laurie, Washington representative; Republic Aviation Corp., A. T. Hapke, Jr., Assistant director, military contracts; Sperry Gyroscope Corp., Robert B. Lea, vice-president; Titeflex Metal Hose Co., George S. Pfouts, postwar research; Waco Aircraft Corp., Hugh R. Perry, vice-president; Warner Aircraft Corp., L. A. Faunce, vice-president.

The following members have concurred and made suggestions for modification or amplification of the answers:

Douglas Aircraft Co., Inc., Gordon D. Brown, chairman, Douglas postwar planning committee; Edo Aircraft Corp., George B. Post, vice-president; General Aircraft Corp., Joseph T. Geuting, Jr., vice-president; Jacobs Aircraft Engine Co., J. Story Smith, vice-president; Fairchild Aircraft Corp., Paul J. Frizzel, assistant general manager; Piper Aircraft Corp., W. B. St. John, contract manager; Rohr Aircraft Corp., B. P. Lester, vice-president.



Exploded Breakdown: This graphic drawing shows a breakdown of the PT-23AE primary trainer being built by Aeronca Aircraft Corp. for the Army Air Forces.

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Lockheed Begins Work on Constellation As Final Hudson Bomber Leaves Factory

The last Lockheed Hudson has left the line after constant production for more than five years, giving way for a larger, faster aircraft, the Constellation, which steps into the Hudson's place on the assembly line.

With discontinuance of this two-engined bomber, its counterpart, the Vega Ventura, is in quantity production at Vega Aircraft. As the Hudson was the first airplane to capture a submarine, so an announcement from the Navy Department reveals that the Ventura has fought and sunk a sub only recently.

The Hudson was the first American war plane to fight in this war. It was accepted by the British after Lockheed technicians had performed a normal three-months job in 10 days, building a complete mock-up of a bomber version of the Lockheed 14 commercial transport in time for inspection by a British commission. This was the Hudson which joined combat against the Axis on Sept. 3, 1939.

In writing the swan song of this veteran "war horse", highlights of the plane's record are:

Hudson remained in production from January 1939 to June 1943 and several thousand were delivered to the United Nations.

Approximately 40,000,000 man-hours went into their fabrication, at a cost of many millions of dollars.

Until ferrying of Lockheed "Lightning" fighters became standard practice, more Hudsons had flown the Atlantic than all other aircraft combined. Today they are in operation on all six continents of the World by Americans, British, Canadian, Australian, Chinese, Dutch and other Air Forces of the United Nations.

Although designed chiefly for reconnaissance and patrol duty, Hudson has been used also as a dive bomber, medium-range bomber, mast-high raider, skip-raider, sub-buster and escort fighter.

A Hudson once disabled a Nazi submarine by bombing; strafed it until the crew surrendered, and held it, with help of another aircraft, until surface vessels arrived to capture the U-boat intact.

Other Hudsons dive-bombed Germans at Dunkirk; flashed word that the Bismarck had left German waters; discovered prison ship Altmark in a Norwegian fjord; carried on ice-pack patrol against submarines in North Atlantic; slaughtered 15,000 Jap troops attempting to land on the Malayan coast the same day the Japs attacked Pearl Harbor; in shuttle duty carried water, ammunition, fuel and other supplies to General Montgomery's British Eighth Army in pursuit of Rommel from El Alamein to Tripoli.

Shortly after United States entry into the war, delivery of Hudsons was diverted from the British to the United States Army Air Forces, and it was AAF which accepted the last Hudson last week after test flights by Lockheed pilots. Conversion of facilities at Lockheed factories has been underway for several weeks as the Hudson line gradually emptied.

Douglas Elects Directors

F. W. Conant, vice president-manufacturing, and Arthur E. Raymond, vice president-engineering, Douglas Aircraft Company, Inc., have been elected to membership in the company's executive committee at recent meeting of directors.

Conant, a veteran with Douglas, has charge of all the firm's manufacturing, wherever located. Raymond is well known for his design and development of the entire line of Douglas transports, as well as the C-54 transport and the Army's giant B-19 bomber.

Sikorsky to Set Up Helicopter Airport

What it believes to be the first airport in the U. S. for exclusive use of helicopters is planned by Sikorsky Aircraft Division of United Aircraft Corp.

This airport will be operated in the new plant of Sikorsky, which has recently moved into several buildings formerly occupied by a plumbing manufacturer in Bridgeport. This move marks the final physical separation of Sikorsky from its former connection with Chance-Vought, when it was located in Stratford.

At the same time it was announced that B. L. Whelan had been appointed acting general manager of Sikorsky Aircraft, succeeding J. R. Miller, who is on leave of absence because of ill health.

Bell Breaks Ground

Ground has been broken for the $4,500,000 plant facilities expansion of Bell Aircraft Corp., Niagara Falls, N. Y. Financed by the Defense Plant Corp., the project includes four new buildings, in addition to 2,500,000 square feet of parking area, a boiler plant, and gun range.

Parachute Technicians

Training students (men and women) who on completion of course are qualified for C. A. A. parachute rigger's license and are available for positions.

Joe Crane "Parachutes"
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Last Hudson: The last Hudson bomber to roll off Lockheed Aircraft Corporation's assembly line is shown through the fuselage of a new Lockheed Constellation transport, which is taking the Hudson's place on the line. Richard A. Von Hake, vice president in charge of manufacturing at Lockheed, is shown at right.

Leading Aviation Stocks

New York Stock Exchange

	Week Ending June 12				Week Ending June 19			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
American Airlines	1,800	69⅝	68½	...	1,600	68½	66½	—1
Aviation Corp.	37,100	5½	5⅛	— ⅛	36,600	5¼	4⅞	— ⅜
Bell Aircraft	5,000	18⅝	17⅜	— ¼	2,700	17½	16	—1¼
Bendix Aviation	5,500	38¾	37⅛	— ¾	6,000	37½	36⅝	— ⅛
Boeing Airplane	6,400	18⅜	17½	— ⅞	8,400	17⅝	16⅜	— ¼
Consolidated Vultee	4,900	17½	16¾	— ⅜	9,800	17¼	16	+ ⅛
Consolidated Vultee pfd	2,400	24½	24	— ¾	600	24	23½	— ½
Curtiss-Wright	27,200	8¾	8½	...	30,100	8¾	8¼	— ⅜
Curtiss-Wright A	3,500	23½	22½	...	2,600	23	22½	— ¼
Douglas Aircraft	2,800	69	67½	—1	1,700	68	66¼	— ¾
Eastern Air Lines	7,500	39¼	37⅞	— ⅛	2,000	38½	37⅛	—1
Ex-Cell-O	1,100	27½	26	— ⅝	5,300	26½	25	— ½
Grumman Aircraft Eng.	1,500	15½	15⅛	— ⅜	1,700	15⅛	14¾	— ⅜
Hayes Industries	2,400	9⅜	9⅛	— ¼	2,400	9¼	8⅞	— ¼
Lockheed Aircraft	6,000	22¼	21¼	— ⅝	10,600	21¼	19¾	— ¾
National Aviation	2,400	12⅜	11⅝	— ¾	1,700	11⅝	11¼	— ⅜
North American Aviation	7,600	12⅝	12	— ⅝	6,100	12	11⅞	...
Pan American Airways	27,800	35½	33	+1½	20,400	36¼	34	+ ¼
Sperry Corp.	8,700	32⅛	30¾	+ ⅝	4,100	32	30⅛	— ⅞
Thompson Products	600	33	32½	— ¼	300	31⅝	31½	—1⅝
Trans & Western Air	4,900	22¾	21½	— ⅛	5,800	23	20¾	— ⅜
United Air Lines	10,900	29¾	27¼	— ½	9,500	27¾	26⅜	— ⅜
United Aircraft	10,700	39½	37	—2½	17,600	37½	35½	—1⅝
United Aircraft pfd	1,100	114½	112⅞	— ¾	900	112¾	111½	—1
Wright Aero	17,000	102	96	—4	6,000	96	96	—1

New York Curb Exchange

	Week Ending June 12				Week Ending June 19			
	Sales	High	Low	Net Change	Sales	High	Low	Net Change
Aero Supply B	2,300	5⅛	4¾	— ¼	1,200	4⅞	4¾	...
Air Associates	400	7⅛	7⅛	— ⅛	200	7½	7⅛	— ⅛
Aircraft Accessories	9,900	4⅛	3⅞	...	3,900	4	3⅞	— ¼
Aro Equipment	4,500	20¾	19¾	— ¾	1,500	20	19⅝	— ⅛
Beech Aircraft	5,000	14½	13⅛	— ½	5,000	13⅞	13⅛	— ¼
Bellanca Aircraft	1,500	3⅞	3⅝	— ¼	700	3⅝	3½	— ¼
Breeze Corps.	2,300	11⅛	11	+ ⅛	1,400	11	10½	— ⅛
Brewster Aero	7,900	5⅜	4¼	— ⅞	2,700	4⅞	4⅜	+ ⅛
Cessna Aircraft	4,300	10	9½	...	3,000	10	9½	— ⅛
Colonial Airlines	3,900	7⅛	6¾	+ ⅛	10,600	8¾	7	+1⅛
Fairchild Aviation	500	9½	9	— ½	800	9	8½	...
Fairchild Eng. & Airplane	4,000	2¼	2⅛	— ⅛	2,100	2⅛	2	— ⅛
Irving Air Chute	900	10¼	10	— ¼	1,000	10⅜	10	+ ⅛
Pennsylvania-Central Air	6,600	16	15⅜	— ⅛	2,800	15⅛	14⅞	— ⅛
Republic Aviation	11,400	4⅜	4	— ⅜	3,000	4⅛	4	— ⅜
Ryan Aero	1,400	4¼	4⅛	— ⅛	900	4⅛	4⅛	+ ⅛
Solar Aircraft	1,200	3⅜	3⅜	— ⅛	1,600	3½	3	— ⅜
United Aircraft Pr.	3,000	12⅛	11¼	— ⅜	2,500	11⅝	11⅛	— ⅜
Western Air Lines	800	9¾	9⅜	— ⅛	2,200	9¾	8⅞	— ⅛

Kaiser Opens N. Y. Offices

Henry J. Kaiser has opened offices in Rockefeller Center, New York City, from which he will supervise his vast interests. Space has been leased on the third floor of the British Empire Building. Kaiser estimates he has 250,000 persons in his employ. One of the reasons he gave for opening New York offices was "because of the postwar situation."

"I am keenly interested in postwar developments and New York is an excellent spot from which to keep watch over them," he said.

Brewster Man to Navy

George Chapline, vice-president of Brewster Aeronautical Corp., is scheduled to report to the Navy July 5 as Commander. He was founder of the Hi-Hat Squadron of the Navy and was one of the first men in the United States to be authorized by the Department of Commerce to tow gliders.

Record Set on Delivery of Turbo Superchargers

General Electric Company recently delivered a carload of turbo-superchargers to the Army 60 days ahead of schedule. The order was filled at a Fort Wayne, Ind., plant on which construction had begun just six months previous, the company reports. The Fort Wayne plant, largest of all General Electric factories, produces more geared supercharger impellers than any other plant in the United States and is the only General Electric Plant where turbo-superchargers are manufactured under full line production methods, the report said.

Turbo-superchargers are devices which make it possible for America's large bombing planes to fly at extremely high altitudes—beyond the range of antiaircraft fire. They are now part of the regular equipment on all Boeing Flying Fortresses, Lockheed Lightning P-38s, Consolidated Liberators, and Republic P-47 pursuit planes.

"Hearts and Lungs"

Production of B-24 center wing sections has increased 700% in the last eight months, it was announced last fortnight at the Ford Willow Run Plant. The center wing section is the "heart and lungs" of the B-24, said the announcement. On it hangs the fuselage of the ship, fore and aft, and underneath are supported the bomb racks. In addition, the 55 foot center section carries the bulk of the plane's gasoline, the two 56 inch wheels of the retractable landing gear, and, on its leading edges, four 1,250 hp engines.

"Application of automobile manufacturing methods in the construction of B-24s is beginning to bear bitter fruit for the Axis," said the Ford announcement.

Louisville Improvement

A new appropriation, amounting to about $2,000,000 has been approved for the Louisville plant of Consolidated Vultee. Money will be spent, according to report, on an extension of the concrete apron and hangar annexes. Office of Chief of Army Engineers, Washington, approved this new allotment. Construction of the plant addition is scheduled to start shortly.

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Boots Aircraft Nut Corporation	24B
Braniff Airways, Inc.	3
Celanese Celluloid Corporation	19
Cleveland Pneumatic Tool Company	37
Cox and Stevens Aircraft Corporation	69
Darnell Corp., Ltd.	4
Dinkler Hotels Co., Inc.	74
Dumore Company	6
Edo Aircraft Corporation	7
Fairchild Engine and Airplane Corp.	11
Fleetwings, Inc.	20
General Aviation Equipment Company	32A
Goodrich, B. F., Company	10A-D
Grand Rapids Industries, Inc.	75
Hayes Industries, Inc.	5
Kollsman Instrument Company	57
Lawrance Engineering and Research Corp.	40
Lockheed Aircraft Corporation	31
Midwest Aircraft Products, Inc.	71
National Airlines, Inc.	9
Northrop Aircraft, Inc.	33
Otto Aviation Corporation	6
Piper Aircraft Corporation	47
Radio Corporation of America	12
Republic Aviation Corporation	2d Cover
Reynolds Metals Company, Inc.	38-39
Ryan Aeronautical Corp.	58
Solar Aircraft Company	55
Suncook Mills	67
Texas Company	76
United Air Lines	4
United States Rubber Company	43
Universal Airline Schedules	14
Vokes, Ltd.	13
Whiting Corporation	65
Wittek Manufacturing Company	74
Wright Aeronautical Corporation	24A

On The Labor Front

ALUMINUM COMPANY OF AMERICA, INC., Detroit, Mich.
NLRB directs elections for plant protection workers to vote for Amalgamated Plant Protection Workers, UAW-CIO. At Mead Aluminum plant, Spokane, Wash., election for production and maintenance employes to vote for Aluminum Workers of America-CIO, Spokane Aluminum Trades Council, AFL, or neither.

BOHN ALUMINUM & BRASS CO., Detroit, Mich.
NLRB affirms amended direction of election to be held within 30 days of June 11.

BRIGGS MANUFACTURING CO., Detroit, Mich.
UAW-CIO is certified for plant protection employes.

CHRYSLER CORP., Detroit, Mich.
Company files request with NWLB for oral argument against demands of UAW for union security, check-off and compulsory arbitration.

CURTISS-WRIGHT CORP., Louisville, Ky.
Election directed for maintenance electricians and helpers to vote for or against Int'l Brhd. Electrical Workers—AFL; production and maintenance workers for or against IAM; steam engineers, firemen and oilers for or against Int'l Brhd. Firemen & Oilers—AFL.

DOUGLAS AIRCRAFT COMPANY, Tulsa and Oklahoma City, Okla.
War Labor Board grants employes wage increases of 4c and 5.8c an hour to conform with pattern of West Coast aircraft wage stabilization plan.

ELECTRIC AUTO-LITE CO., Toledo, O.
Nurses at plants 2, 15, 20 and 25 to hold election to vote for or against representation by Mechanics Educational Society of America.

FAIRCHILD ENGINE & AIRPLANE CORP., Aircraft Div., Burlington, N. C.
Election directed for production and maintenance workers to vote for or against UAW-CIO.

FORD MOTOR COMPANY, Dearborn, Mich.
Election directed for laboratory workers of River Rouge, Highland Park, Willow Run and Lincoln plants to vote for or against representation by Fraternity of Laboratory Workers, The First Chapter. Board certifies Plant Protection Association for plant protection employes.

GENERAL AIRCRAFT CORPORATION, Astoria and Jackson Heights, N. Y.
United Furniture Workers-CIO certified for production and maintenance employes.

GENERAL MOTORS CORPORATION
Chevrolet-Norwood Div., Norwood, O., advised of certification by Board of UAW for production and maintenance workers.
UAW-CIO is certified for rated draftsmen and blue print operators.
At Delco-Remy Division, Anderson, Ind., UAW-CIO is certified for patrolmen and matrons in plant protection department.

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Adel Corp. has $272,453 Profit for Eight Months

Adel Precision Products Corp., Burbank, Cal., has reported profit of $272,453 for the eight months ended Dec. 31, 1942, equal to 58c each on 467,822 shares of capital stock. No comparison with the same period in 1941 was included. For Federal income taxes, $696,163 was provided in charges.

Balance sheet as of Dec. 31, 1942 shows total assets of $5,398,356.42, and current assets of $4,063,869.86, including notes and accounts receivable—trade, $1,168,054.99. Current liabilities amounted to $4,036,697.13, including accounts payable, $1,514,427.21.

Stout Gets Rotary Wing Man

Stout Research Division, Consolidated Vultee Aircraft Corp., announces that E. Burke Wilford of Philadelphia, "an authority on rotary wings," is organizing a rotary wing section for the company with headquarters in the Calvin Theater Bldg., Detroit.

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Andrew Jackson .. NASHVILLE, TENN.
O. Henry ..... GREENSBORO, N. C.
Savannah ..... SAVANNAH, GA.

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